Virtual Solutions for Depression and Anxiety Evaluation — Appendices

May 2025 | Version 1.0

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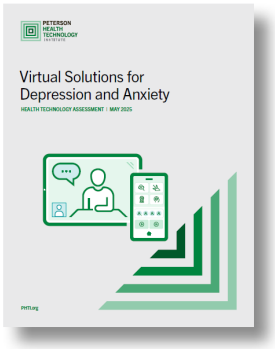
Accessing PHTI's Full Report

You can access the full report here.



PETERSON HEALTH TECHNOLOGY INSTITUTE

Appendix A – Methodology Overview

This evaluation of virtual solutions for anxiety and depression followed the Peterson Health Technology Institute's (PHTI) published assessment methodology, using the ICER-PHTI Assessment Framework for Digital Health Technologies, and stakeholder engagement process. Additional information about PHTI's process and advisors can be found at phti.org.

Assessment Framework

PHTI partnered with the Institute for Clinical and Economic Review (ICER), a leader in health technology assessment, to develop the ICER-PHTI Assessment Framework for Digital Health Technologies that guides this and all other PHTI evaluations. The assessment framework prioritizes products' clinical benefits and economic impact, while also considering effects on health equity and user experience. The selection process for which technologies are evaluated are based on several factors, including market relevance, disease burden, level of spend and claimed savings, and evidence quality and availability.

PHTI's goal is to provide decision makers with relevant information to inform digital health purchasing and innovation that improves overall health system performance and delivers better health outcomes at lower costs. By helping purchasers identify bright spots in digital health innovation, PHTI aims to raise the bar for technology-driven advances in healthcare delivery, including superior outcomes, convenience, access, and affordability. The assessment framework can also guide technology developers and investors about performance standards and the evidence needs required to demonstrate stated clinical and economic benefits.

Clinical Assessment

A systematic literature review (SLR), including online database searches, data screening and extraction, and evidence quality ratings, was conducted by a third-party health technology assessment partner to identify all relevant published literature evaluating clinical impact of virtual solutions for depression and anxiety. The SLR was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This SLR followed the methods and standard set forth in the ICER-PHTI Assessment Framework to provide a rigorous evaluation of digital health technologies. The SLR was registered *a priori* with PROSPERO (CRD42024601558).

Data from two literature databases, MEDLINE and EMBASE, were systematically searched for inclusion into the SLR. Conference proceedings were hand-searched to retrieve relevant publications. Potentially eligible studies were identified via the search strategy outlined in Tables 1 and 2 below. Studies were considered for inclusion in the SLR based on the population, intervention, comparators, outcomes, and setting/study design (PICOS) criteria presented in Table 3 below.

The SLR included a review of the "grey" literature, which captured data from sources not indexed and that are available from scientific conferences, the US Food and Drug Administration (FDA) website and 510k clearances, company websites, and information provided by companies under review.

Table 1. Medline Search Strategy

SEARCH	TERMS	CITATIONS
#1: Clinical Indications	"Anxiety"[MeSH] OR "Anxiety disorders"[MeSH] OR "Depression"[MeSH] OR "Depressive disorder, major"[MesH] OR "Depressive Disorder, Major"[MeSH] OR "major depressive disorder"[tiab:~0] OR “anxiety”[tiab] OR “depression”[tiab] OR “depressive”[tiab]	753,588
#2: Artificial Intelligence and Applications	"digital health"[MeSH Terms] OR “digital health”[Text Word] OR "digital mental health"[tiab:~0] OR "Mobile Applications"[MAJR] OR "mobile health app*"[tiab] OR "mobile health app"[tiab:~0] OR "digital health intervention"[tiab:~0] OR "mental health app"[tiab:~0] OR "digital intervention"[tiab:~0] OR “digital therapeutics”[tiab:~0] OR “digital therapeutic”[tiab:~0] OR “mobile health program”[tiab] OR “smartphone app”[tiab] OR ((mobile OR smartphone or internet OR digital) AND (app OR application OR delivered OR intervention))	621,620
#3: Cognitive Behavioral Therapy	"Cognitive Behavioral Therapy"[Mesh] OR “CBT”[tiab] OR "cognitive behavior* therapy"[tiab] OR "Cognitive Behavioral Therap*"[tiab] OR "cognitive behavioral therapy"[tiab:~0] OR "cognitive behavioural therapy"[tiab:~0] OR "cognitive restructuring"[tiab:~0] OR "Cognitive Restructuring"[Mesh] OR “iCBT”[tiab] OR "internet CBT"[tiab:~0] OR ”virtual CBT"[tiab:~0] OR ”remote CBT"[tiab:~0] OR ”electronic CBT"[tiab:~0] OR ”computerized CBT"[tiab:~0] OR ”computerised CBT"[tiab:~0] OR "internet cognitive behavioral therapy"[tiab:~1] OR "Cognitive Behavioral Therapy/methods"[MeSH] OR "Cognitive Behavioral Therapy/methods"[MAJR] OR "Cognitive Behavioral Therapy"[MAJR] OR "Anxiety/therapy"[MeSH] OR "Anxiety/therapy"[MAJR] OR “Depression/therapy"[MeSH] OR "Depression/therapy"[MAJR] OR anxiety*/therapy OR “telepsychiatric care”[tiab:~0] OR “telepsychiatr*”[tiab]	109,825
#4: Combination	(#2 AND #3) OR (#1 AND #2 AND #3)	6,816
#5: Exclusions	#4 NOT (“PTSD”[tiab] OR “post traumatic stress disorder”[tiab] OR “post-traumatic stress disorder”[tiab] OR “schizophrenia”[tiab] OR “phobia”[tiab] OR “psychosis”[tiab] OR “dementia”[tiab] OR (“chronic”[tiab] adj+ “pain”[tiab]) OR “postpartum”[tiab] OR “prenatal”[tiab] OR “perinatal”[tiab] OR “peripartum”[tiab] OR “pregnancy”[tiab] OR “menopaus*”[tiab] OR “cancer”[tiab] OR “HIV”[tiab] OR (“coronary”[tiab] adj+ “disease”[tiab]) OR “stroke”[tiab] OR “heart failure”[tiab] OR “adolescen*”[tiab])	5,022
#6: Study Type Exclusions	#5 NOT (“address”[pt] OR "case reports"[pt] OR "case report*"[tiab] OR "clinical trial protocol"[pt] OR “Clinical Trial, Veterinary”[pt] OR “comment”[pt] OR “editorial”[pt] OR “lecture”[pt] OR “letter”[pt] OR “Observational Study, Veterinary”[pt] OR “Personal Narrative”[pt] OR “Published Erratum”[pt] OR “Randomized Controlled Trial, Veterinary”[pt] OR “Retracted Publication”[pt] OR “Retraction of Publication”[pt])	4,667
#7: Human Studies	#6 NOT (“Animals”[MeSH] NOT “Humans”[MeSH])	4,646
#8: Date Filter	Filter 2018-2024	3,074
#9: Language Filter	English	**3,036**

Table 2. Embase Search Strategy

SEARCH	TERMS	CITATIONS
#1: Clinical Indications	'anxiety' OR 'generalized anxiety disorder' OR 'anxiety disorder' OR 'depression' OR 'major depression' OR 'mixed anxiety and depression' OR 'anxiety':ti,ab 'major depressive disorder':ti,ab OR 'depression':ti,ab OR 'depressive':ti,ab	705,093
#2: Artificial Intelligence and Applications	'digital health' OR 'digital health technology' OR 'digital health intervention'/de OR 'digital health application'/de OR 'digital therapeutics'/de OR 'digital health intervention':ti,ab OR 'digital therapeutics':ti,ab OR 'digital therapeutic':ti,ab OR 'digital mental health'/de OR 'digital mental health':ti,ab OR 'digital mental health intervention'/de OR 'mobile applications' OR 'mobile health application' OR 'mobile health app*':ti,ab 'mental health app':ti,ab OR 'mobile health program':ti,ab OR (('mobile' OR 'smartphone' OR 'internet' OR 'digital') AND ('app' OR 'application' OR 'delivered' OR 'intervention')):ti,ab	98,632
#3: Cognitive Behavioral Therapy	'Cognitive Behavioral Therapy' OR 'cognitive restructuring' OR 'cognitive restructuring':ti,ab OR 'CBT':ti,ab OR 'cognitive behavior* therapy':ti,ab OR 'cognitive behavioral therapy':ti,ab OR 'cognitive behavioural therapy':ti,ab OR 'iCBT':ti,ab OR 'internet cognitive behavioral therapy':ti,ab OR 'anxiety therapy'/de OR 'depression therapy'/de OR 'telepsychiatry' OR 'telepsychology' OR 'telepsychiatr*':ti,ab OR (('internet' OR 'virtual' OR 'remote' OR 'electronic' OR 'computerized' OR 'computerized') AND ('CBT')):ti,ab	58,827
#4: Combination	(#2 AND #3) OR (#1 AND #2 AND #3)	3,505
#5: Exclusions	#4 NOT ('PTSD' OR 'post traumatic stress disorder' OR 'post-traumatic stress disorder' OR 'schizophrenia' OR 'phobia' OR 'psychosis' OR 'dementia' OR 'chronic pain' OR 'postpartum' OR 'prenatal' OR 'perinatal' OR 'peripartum' OR 'pregnancy' OR 'menopaus*' OR 'cancer' OR 'HIV' OR 'coronary heart disease' OR 'coronary artery disease' OR 'stroke' OR 'heart failure' OR 'adolescen*'):ti,ab	2,478
#6: Study Type Exclusions	#5 NOT ('case report'/it OR 'case report':ti,ab OR 'comment'/it OR 'editorial'/it OR 'letter'/it OR 'clinical trial protocol'/it)	2,456
#7: Human Studies	#6 NOT (('animal'/exp OR 'nonhuman'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'in vitro study'/de) NOT 'human'/exp)	2,445
#8: Abstract Exclusions	#7 NOT 'conference abstract'/it	2,038
#9: Date Filter	Filter 2018-2024	1,516
#10: Language Filter	Filter Language: English	1,493
Conference abstracts		
#11: Abstract Inclusion	#7 AND 'conference abstract'/it	415
#12: Date Filter	Filter 2021-2024	202
#13: Language Filter	Filter Language: English	202
#14: Combination	#10 OR #13	**1,695**

Table 3. PICOS Inclusion and Exclusion Criteria

Criteria	Inclusion criteria	Exclusion criteria
Population	• Adults (≥18 years) with anxiety symptoms and/or depressive symptoms as reported in a validated measure or clinician judgement[a] • Adults (≥18 years) with a clinical diagnosis of generalized anxiety disorder (GAD) as defined by DSM-5 • Adults (≥18 years) with a clinical diagnosis of major depressive disorder (MDD) as defined by DSM-5	• Patients with other subcategories of anxiety and/or depressive disorders as specified in DSM-5[b,c] • Patients with any other mental health disorder as categorized by DSM-5[d] • Patients <18 years of age • Patients with a self-determined diagnosis of GAD and/or MDD • Anxiety and/or depression secondary to another condition (e.g. pregnancy, physical condition, injury/trauma, substance use disorders) • Severe anxiety symptoms and/or depressive symptoms[e]
Subgroup	• Race/Ethnicity, sex, age ≥65 years, urban/rural location, and LGBTQ+[f]	
Intervention(s)	• Cognitive Behavioral Therapy (CBT)-based digital therapy including a human therapist/coach and/or app-based solution with artificial intelligence (e.g., app-based messaging, educational modules, etc.) See Table 4 for included CBT-based therapy terms.	• DHTs used to diagnose anxiety and/or depression only • Interventions used in context of specialized psychiatric care • Dyadic or group therapy
Comparator(s)	Usual Care • One-on-one provider-patient in-person or virtual therapy with or without pharmacological therapy • Pharmacological therapy/use only	N/A

Outcomes	Primary Clinical Outcomes
	Depression
	• Change over time and between-group differences in depression symptoms using validated, self-reported scales, including:
	  ○ Patient Health Questionnaire (PHQ-9)
	  ○ Beck Depression Inventory
	  ○ Depression Anxiety Stress Scales-21
	  ○ Hamilton Rating Scale for Depression
	  ○ Quick Inventory of Depressive Symptomatology
	  ○ Montgomery-Åsberg Depression Rating Scale
	Anxiety
	• Change over time and between-group differences in anxiety symptoms using validated, self-reported scales, including:
	  ○ Generalized Anxiety Disorder-7 (GAD-7)
	  ○ Beck Anxiety Inventory
	  ○ Hamilton Anxiety Rating Scale
	  ○ Patient-Reported Outcomes Measurement Information System
	  ○ Hospital Anxiety and Depression Scale
	  ○ Depression Anxiety Stress Scales-21
	  ○ Penn State Worry Questionnaire
		N/A

	Secondary Clinical Outcomes
	• Score change over time in validated outcome measures of Psychosocial Functioning (including various measures reported by the studies)
	• Score change over time using Work Productivity and Activity Impairment (WPAI)
	Safety
	• Adverse events
	• Crisis events, e.g., suicide attempts
	User experience
	• Engagement
	  ○ Sessions (e.g., number completed, mean weeks met with a therapist, average duration)
	  ○ Communications (e.g., responses, total contacts, texts/messages sent, average duration)
	  ○ App usage (e.g., features used, modules/activities/lessons/exercises completed, completed weekly measures)
	  ○ Other (e.g., days to drop out, dose received, D-WAI/WAI-tech)
	• Satisfaction/Usability
	Health equity
	• Access and accessibility
	• Distribution	

Study Design	• Randomized controlled trials and non-randomized controlled trials • Observational studies • SLRs[g]	• Editorials, commentaries, study protocols, reviews, and case reports, narrative reviews • ≤ 20 study participants
Setting	• Outpatient setting • United States	• Inpatient setting • Residential programs • Outside of United States
Data Sources	• EMBASE and MEDLINE (via PubMed) Conferences • American Psychological Association • Anxiety and Depression Association of America	N/A
Date of Publication	• Databases: 2018 to 2024 • Conferences: 2021 to 2024	N/A
Language	• English	N/A

Notes: CBT = cognitive behavioral therapy. DHT = digital health technology. D-WAI/WAI-tech = Digital Working Alliance Inventory. N/A = not applicable. SLR = systematic literature review. [a] The SLR excluded study populations with subclinical symptoms that did not meet at least mild disease (e.g., PHQ-9 ≥5, GAD-7 ≥5) to provide comparability across studies and to capture sufficient disease symptoms that allow for meaningful changes in disease status. [b] Disruptive mood dysregulation disorder; Persistent depressive disorder; Premenstrual dysphoric disorder; Substance/medication-induced depressive disorder; depressive disorder due to another medical condition; Other specified depressive disorder; Unspecified depressive disorder. [c] Separation anxiety disorder; Selective mutism; Specific phobia; Social anxiety disorder; Panic disorder; Agoraphobia; Substance/medication-induced anxiety disorder; Anxiety disorder due to another medical condition; Other specified anxiety disorder; Unspecified anxiety disorder. [d] Neurodevelopmental disorders; Schizophrenia spectrum and other psychotic disorders; Bipolar and related disorders, Obsessive-compulsive disorders; Trauma- and stressor-related disorders; Dissociative disorders; Somatic symptoms and related disorders; Feeding and eating disorders; Elimination disorders; Sleep-wake disorders; Sexual dysfunction; Gender dysphoria; Disruptive, impulse-control, and conduct disorders; Substance-related and addictive disorders; Neurocognitive disorders; Personality disorders; Paraphilic disorders; Other mental health disorders. [e] Applies to studies including only patients with severe symptoms. We will retain studies for mixed populations including severe patients (i.e. mild-to-severe or moderate-to-severe). [f] No studies reported analyses based on LGBTQ+ subgroups. [g] SLRs are included for manual reference checks only for studies published between 2018 to 2024 and will not be included in the qualitative evidence synthesis.

Table 4. Cognitive Behavioral Therapy Based Therapy Terms

Include	Exclude
Acceptance and commitment therapy	Multimodal therapy
Behavioral activation therapy	Reality therapy/choice theory
Behavioral momentum	Cognitive processing therapy
Blended-care cognitive behavioral therapy / Cognitive behavioral therapy-based blended care	Metacognitive therapy / training
Cognitive behavioral coaching	Rational emotive behavior therapy
Cognitive behavioral interventions	Cognitive bias modification
Cognitive therapy	
Cognitive restructuring	
Cognitive emotional training	
Dialectical behavior therapy	
Digital cognitive behavioral therapy	
Emotional processing	
Exposure therapy (gradual/imaginal)	
Internet-delivered cognitive behavioral therapy (iCBT)	
Interpersonal psychotherapy	
Mindfulness-Based Stress Reduction	
Mindful awareness	
Mindfulness-Based Cognitive Therapy	
Unified protocol (unified treatment protocol)	
Relaxation/mindfulness therapy (relaxation-based strategies)	
Problem solving treatments (stress management)	
Eye movement desensitization and reprocessing	

Screening

All publications identified by the systematic literature searches were reviewed against the predefined selection criteria (Table 3). Study selection followed a two-stage screening process based on the review of titles and abstracts (stage I) and full-text articles (stage II). Following completion of title/abstract review, all full texts of publications identified for inclusion during this stage were retrieved for further review. For conference abstracts without available associated posters and for database abstracts without a full text available, the report was screened based on the available information within the abstract. Title/abstract and full-text screening for each report were conducted by two independent investigators with any disagreements resolved by discussion with a third investigator, if needed.

All screening was conducted using Nested Knowledge software, which provides a platform where reports retrieved from the database searches can be organized and screened using customizable entry forms. During both screening stages, abstracts and articles were excluded if they had populations, interventions, outcomes, settings, study designs, or publication types that

were out of scope based on the PICOS criteria. Studies published in languages other than English were also excluded.

Data Extraction

Data were extracted by one investigator with quality assurance against the original source publication completed by another independent investigator. Table 5 lists the reported data captured for each included study.

Table 5. Data Collected

Study Information
Publication citation
Study identifier or trial name
Study design
Source of data
Timeframe of data collection
Follow-up duration
Definition of MCID for outcomes of interest
Patient Information
Sample size
Age, in years
Sex and/or Gender
LGBTQ+ status
Race/Ethnicity
Clinical diagnosis (GAD and/or MDD)
Duration of illness
Symptom severity (mild, moderate, mixed mild-to-severe)
Pharmacological treatment/therapy
Location (urban/rural)
Interventions
DHT intervention, including definition
Usual care, including definition
Unit of service (AI-enabled app or platform, web-application)
Outcomes[a,b]
Primary Clinical Outcomes
• Score change over time in validated outcome measures (including variable measures as reported by the studies), including MCID and statistical significance as available
Secondary Clinical Outcomes
• Score change over time in validated measures of psychosocial functioning and workplace productivity (including variable measures as reported by the studies)
• Safety (adverse/crisis events, e.g., suicide attempts)
User experience
• Engagement
• Satisfaction/Usability

Health equity

- Access and accessibility
- Distribution
- Outcomes by subgroups of interest in context of health equity: race/ethnicity, gender, age, urban/rural, socioeconomic status

Notes: AI = artificial intelligence. CBT = cognitive behavioral therapy. DHT = digital health technology. GAD = generalized anxiety disorder. MCID = minimally clinically important difference. MDD = major depressive disorder.
[a] Will include mean, median, and/or effect estimates as reported, along with corresponding uncertainty measures (e.g., 95% confidence interval), and clinically important differences achieved. [b] If outcomes are reported across multiple timepoints, results will be captured separately.

Evidence Quality Assessment

All included randomized controlled trials (RCTs) were assessed for potential bias using the Cochrane Collaboration Risk of Bias in Randomized Trials Version 2 (RoB2).[1] The RoB2 includes a maximum of 22 questions that considers the following domains:

Domain 1: Risk of bias arising from the randomization process
Domain 2: Risk of bias due to deviations from the intended interventions (effect of assignment or adherence to intervention)
Domain 3: Missing outcome data
Domain 4: Risk of bias in measurement of the outcome
Domain 5: Risk of bias in selection of the reported result

Possible ROB2 ratings are shown in Table 6.

Table 6. Risk of Bias Categories for RoB2

Rating	Criteria
Low risk of bias	The trial is judged to be at low risk of bias for all domains for this result.
Some concerns	The trial is judged to raise some concerns in at least one domain for this result, but not to be at high risk of bias for any domain.
High risk of bias	The trial is judged to be at high risk of bias in at least one domain for this result. OR The trial is judged to have some concerns for multiple domains in a way that substantially lowers confidence in the result.

Notes. RoB2 = risk of bias in randomized trials version 2.

Non-randomized / observational studies were assessed using the Newcastle-Ottawa Scale (NOS).[2] Studies were evaluated for multiple criteria within 3 categories: selection of groups, comparability of groups, and either exposure or outcome, depending on the type of study. Possible NOS ratings are shown in Table 7.

Table 7. Risk of Bias Rating Using NOS

Rating	Description
++	All or most of the checklist criteria have been fulfilled, where they have not been fulfilled the conclusions are very unlikely to alter.
+	Some of the checklist criteria have been fulfilled, where they have not been fulfilled or not adequately described, the conclusions are unlikely to alter.
-	Few or no checklist criteria have been fulfilled and the conclusions are likely or very likely to alter.

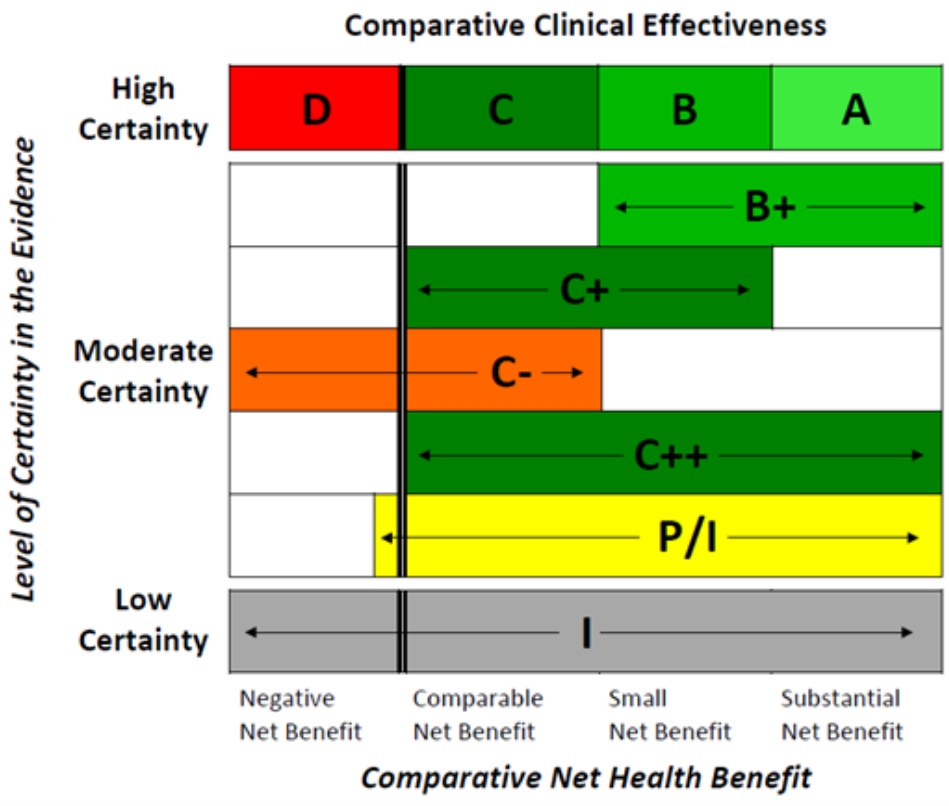
Notes. NOS = Newcastle Ottawa Scale.

For ease of interpretation, scales from the two Risk of Bias tools were converted to a single scale: Low, Moderate, High. “Low” refers to original ratings of “Low Risk of Bias” (ROB2) or “Good Study Quality” (NOS); “Moderate” refers to original ratings of “Some Risk of Bias” (ROB2) or “Fair Study Quality” (NOS); “High” refers to original ratings of “High Risk of Bias” (ROB2) or “Poor Study Quality” (NOS).

ICER-PHTI Assessment Framework Evidence Standards: The body of research that comprised the clinical effectiveness section was assessed against the minimum evidence requirements set forth in the ICER-PHTI framework based on the level of risk that the digital intervention presents to a user. The interventions in this assessment qualify as Tier 3 according to the ICER-PHTI Assessment Framework because they are professionally directed therapeutic services used in consultation with a medical professional. While best research methods call for a randomized controlled trial, given the limited risk of harm to patients from these solutions, this assessment considers all identified evidence and prioritizes any evidence meeting the minimum standards for Tier 3, which includes a relevant comparator.

ICER Evidence Rating Matrix: The body of evidence for each digital solution approach was evaluated based on effectiveness and safety that followed the ICER Evidence Rating Matrix™ (see Figure 1).

Figure 1. The ICER Evidence Rating Matrix™



- ***A = "Superior" –*** *High certainty of a substantial (moderate-large) net health benefit*
- ***B = "Incremental" –*** *High certainty of a small net health benefit*
  C = "Comparable" – *High certainty of a comparable net health benefit*
- ***D= "Negative" –*** *High certainty of an inferior net health benefit*
- ***B+= "Incremental or Better" –*** *Moderate certainty of a small or substantial net health benefit, with high certainty of at least a small net health benefit*
- ***C+ = "Comparable or Incremental" –*** *Moderate certainty of a comparable or small net health benefit, with high certainty of at least a comparable net health benefit*
- ***C- = "Comparable or Inferior"*** *– Moderate certainty that the net health benefit is either comparable or inferior, with high certainty of at best a comparable net health benefit*
- ***C++ = "Comparable or Better" –*** *Moderate certainty of a comparable, small, or substantial net health benefit, with high certainty of at least a comparable net health benefit*
- ***P/I = "Promising but Inconclusive"*** *– Moderate certainty of a small or substantial net health benefit, small likelihood of a negative net health benefit*
- ***I = "Insufficient" –*** *Any situation in which the level of certainty n the evidence is low*

Evidence Evaluation Approach

The evaluation approach is informed by expert advisors in the healthcare space, clinical advisors, and patients with a goal of producing meaningful evaluations that inform purchasing decisions.

Comparative Studies

Virtual Solutions for Depression and Anxiety: All the solutions evaluated deliver asynchronous, digital content that can be used instead of or in addition to live therapy or other outpatient treatment. The solutions vary in the composition of the solution offerings and the primary purchaser of the solution: (1) CBT-based digital programs sold directly to employers or health plans, (2) FDA-approved digital therapies sold to providers and must be prescribed to patients, and (3) integrated clinician-guided care, including one-on-one therapy, with digital programs sold directly to employers or health plans.

Comparator Interventions: Virtual solutions for depression and anxiety were examined in two distinct groups within the clinical evidence: (1) study populations where participants received usual care as some form of psychotherapy at baseline or where baseline psychotherapy status was not reported and (2) study populations where participants were explicitly excluded from receiving psychotherapy at baseline. Usual care or "treatment as usual" included a range of treatment options (e.g., medication, psychotherapy, primary care management), but it should be noted that studies conducted in primary care settings were not automatically assigned to the usual care category, as several studies conducted in primary care studies[3,4,5] specifically excluded patients receiving psychotherapy at baseline. Similarly, waitlist control methodology did not determine classification, as some waitlist control arms included patients who were receiving psychotherapy at baseline.[6,7,8] Across both groups the use of mental health medications is mixed. This assessment prioritizes studies that include comparators over single-arm studies to understand the incremental impact of digital interventions relative to usual care for improving symptoms.

Clinical Outcomes: The primary clinical outcomes of clinical effectiveness are change in depression and anxiety symptoms using validated measures (e.g., PHQ-9, GAD-7). Secondary clinical outcomes described in the evidence include patient-reported measures of psychosocial functioning and workplace productivity, and safety.

Comparator Studies Data: Among comparator studies that included more than one patient sample (e.g., symptom severity at baseline, anxiety or depression), the most complete data across all study articles was selected for interpretation of the findings. For studies missing between-group differences data points (e.g., between-group difference in change from baseline): values were calculated based on data provided in the study articles or, when figures or graphs were provided, digitized data values were obtained. Between-group comparison values were based on differences in change from baseline when reported or calculation was possible. Averages were weighted by the count of patients in the study.

Minimally Important Clinical Differences (MCID): Based upon the input of our clinical advisors, guidance from within studies, and external references, the report defines the MCID threshold at a 5-point reduction in PHQ-9 scores from baseline for depression and a 4-point reduction in GAD-7 scores from baseline for anxiety. We apply MCID on the average score improvement across participants in each study arm for evaluating study findings, but also consider statistical significance.

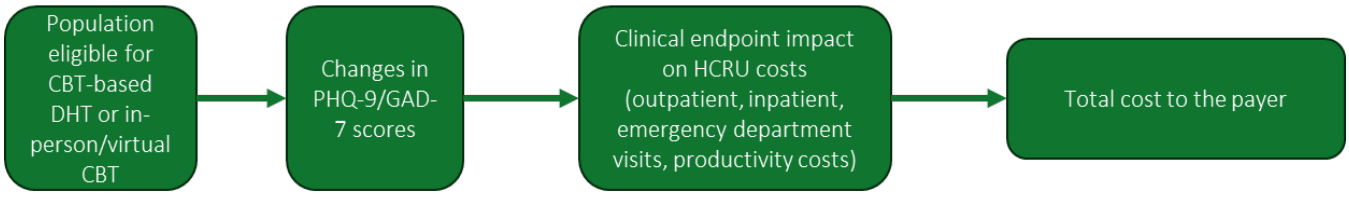
User Experience and Health Equity: To be clinically effective, virtual solutions for depression and anxiety must engage patients and deliver strong user experience. The assessment includes data on patients' user experience, satisfaction, and engagement with the solutions. In addition, patient sociodemographic characteristics were used to better understand how the solutions performed in different patient subgroups.

Economic Assessment

PHTI developed a de novo budget impact analysis for virtual solutions for US adults with depression and anxiety. The time horizon is 1 year. A hypothetical US health plan with 1,000,000 members where eligible patients initiated a virtual solution compared to usual care or no treatment and were followed until the end of the time horizon.

The budget impact model schematic is presented in Figure 2. Based on available data, the base case model focuses on the impact on direct healthcare resource use (HCRU) costs via a change in PHQ-9 and GAD-7 scores. Further details on cost inputs are presented below.

Figure 2: Budget Impact Model Schematic



Notes: CBT = cognitive behavior therapy; DHT = digital health technology; GAD-7 = Generalized Anxiety Disorder-7; HCRU = healthcare resource use; PHQ-9 = in Patient Health Questionnaire-9.

Intervention: The interventions in the budget impact analysis were hypothetical virtual solutions for treating depression and anxiety based on the three solution categories: self-guided solutions, prescription digital therapeutics, and blended care solutions.

Comparator: The comparators for this analysis were usual care defined as a typical treatment episode of CBT psychotherapy or no psychotherapy treatment.

Key Inputs: The model includes four primary components: (1) eligible population, (2) usual care costs, (3) reduced costs from health improvements, (4) technology price, and (5) participation rates. Inputs to the budget model are summarized in Table 8.

Table 8: Summary of Model Inputs

Category	Parameter	Commercial	Medicare	Medicaid
Eligible Population	No Psychotherapy	73,513	50,391	61,527
	Usual Care	95,333	66,665	79,703
Usual Care Costs	Psychotherapy Sessions (annual average)	4.7		
	Annual Cost (CPT code 90791, CPT code 90834)	$657		$532
Health Savings (No Psychotherapy)	Self-Guided Solutions	$754	$441	$289
	Blended-Care Solutions	$994	$574	$382
Health Savings (Usual Care)	Self-Guided Solutions	$575	$324	$221
	Prescription Digital Therapeutics	$643	$358	$247
	Blended-Care Solutions	$961	$536	$369
Technology Price	Self-Guided Solutions	$24 per member per year ($2 per member per month)		
	Prescription Digital Therapeutics	$280 per user per year		
	Blended-Care Solutions	$72 per member per year ($6 per member per month); additional $792 per engaged user per year for therapy		
Participation Rate	Self-Guided Solutions	25%		
	Prescription Digital Therapeutics	25%		
	Blended-Care Solutions	50%		

Notes: CPT = Current Procedural Terminology.

Results: The budget impact analysis reports the following results across commercial, Medicare, and Medicaid populations:

- Total costs for virtual solutions, usual care, and no psychotherapy scenarios
- Incremental cost per user per month (PUPY)
- Incremental cost per member per month (PMPM)

Scenario Analysis: The model includes an alternative scenario using full Employee Assistance Program (EAP) replacement pricing assumptions. The scenario analysis assumes the price of blended care solutions at $4 per member per month and an average utilization pricing of $66 per engaged user per month for 12 months of billing. An additional scenario analysis was conducted assuming only half of the blended care solution will access therapy services through the solution, and the remaining users will engage with the digital content but continue to receive psychotherapy from outside providers. The model estimates the same average monthly solution price of $6 per member per month, but a lower added session utilization cost of $396 per engaged user per year.

Model Assumptions and Limitations:

- The base case population is depression and anxiety which is categorized into 3 subpopulations: depression and anxiety, anxiety only, and depression only.
- Changes in GAD-7 or PHQ-9 for each arm, informed by clinical data sources, are assumed to stay constant for the duration of the budget impact time horizon to estimate costs. This may over- or underestimate costs.
- Annual HCRU and productivity costs are applied based on disease severity. The model assumes the reported costs from the literature apply to the mid-point estimate of the GAD-7 and PHQ-9 score ranges for each level of severity for depression and anxiety, respectively.
    - Using these estimates across severity levels (none, mild/moderate, and severe, for anxiety; mild, moderate, moderately severe, and severe for depression), the model assumes a linear estimation of annual HCRU and productivity costs based on resulting GAD-7 and PHQ-9 scores, informed by the clinical studies for each arm
- Where needed, health plan-specific costs were derived by multiplying costs identified in the literature by published Medicare to Medicaid and Medicare to Commercial cost ratios[9]
    - For psychotherapy, costs were converted from the Medicare perspective using therapy-specific reimbursement ratios, based on published literature[10,11]
- The model assumes 25% of people with symptoms of depression and anxiety could elect to use a self-guided solution for their care, 25% of people could receive a Prescription Digital Therapeutic (PDT) prescription through their provider, and a higher participation rate of 50% of people would elect to use a blended care solution for their care
    - The model also assumes that all blended care users will begin receiving therapy through the app rather than through outside providers

Analysis Inputs

Patient Population: The eligible patient population for the analysis was US adults with depression and anxiety. Depending on the intervention approach, patients are either actively treated for their depression and anxiety or not otherwise receiving treatment. Prevalence of depression and anxiety was taken from Centers for Disease Control and Prevention (CDC)

Survey data[12], where the prevalence of anxiety, depression, and total prevalence of anxiety or depression is presented. The model assumed the prevalence of anxiety only or depression only to be equal to the reported total prevalence of anxiety or depression minus the prevalence of the other condition. The prevalence of concurrent depression and anxiety was calculated as the reported total prevalence of anxiety or depression, minus the calculated prevalences of anxiety only and depression only. Patient population inputs are presented in Table 9.

Table 9: Eligible Population Inputs

Criteria	Commercial	Medicare	Medicaid	Source
Plan population	1,000,000	1,000,000	1,000,000	Assumption
Proportion of plan that is adults	78.9%	99.2%	48.7%	ACS[13]
Prevalence, anxiety and depression	10.1%	5.0%	13.7%	Adapted from CDC data[14]
Prevalence, anxiety only	7.5%	3.7%	10.2%	
Prevalence, depression only	3.8%	3.1%	5.1%	
Proportion treated, anxiety and depression	69.3%	69.3%	69.3%	Weisberg et al. 2014[15]
Proportion treated, anxiety	36.9%	36.9%	36.9%	ADAA[16]
Proportion treated, depression	61.0%	61.0%	61.0%	ADAA[17]
Proportion untreated, anxiety and depression	30.7%	30.7%	30.7%	Calculated as 100% - proportion treated
Proportion untreated, anxiety	63.1%	63.1%	63.1%	
Proportion untreated, depression	39.0%	39.0%	39.0%	

Notes: ACS = American Community Survey. ADAA = Anxiety and Depression Association of America.

Cost: Cost inputs for HCRU costs and psychotherapy visits for the budget impact analysis were informed by a pragmatic literature review. Cost inputs were inflated to 2024 US dollars using the annual Consumer Price Index for medical care.[18] For each perspective, Commercial to Medicare[19] and Medicare to Medicaid[20] payment rate conversions for outpatient services were applied to the HCRU source cost to reflect the cost input for each payer perspective. For psychotherapy visits, costs were converted from the Medicare perspective using therapy-specific reimbursement ratios, based on published literature.[21,22] These ratios are presented in Table 10.

Table 10: Health Plan Cost Conversions

Health Plan	Outpatient Services	Psychotherapy
Medicare to Commercial	182%[23]	100%[24]
Medicare to Medicaid	70%[25]	81%[26]

Notes: CBT = cognitive behavioral therapy.

Usual Care: Usual care is characterized by psychotherapy visits. The number of visits for usual care is informed by published literature which reported that patients had a mean of 9.4 visits over 13.1 weeks, which is assumed to be representative of a typical CBT treatment episode.[27]

Clinical evidence about virtual solutions showed that within usual care groups, about half of patients are receiving psychotherapy at baseline. Thus, the model assumes 4.7 sessions (50%) per person in usual care. For self-guided and PDT solution users, the model assumes the cost of usual care psychotherapy is added onto the cost of the solution. Whereas all users of blended care solutions are assumed to switch to receiving psychotherapy within the solution and no users would continue to receive outside psychotherapy sessions. The costs of psychotherapy visits were informed by the Centers for Medicare and Medicaid Services (CMS) Physician Fee Schedule and are presented in Table 11.[28] Total annual spending on therapy for people receiving usual care is estimated at $657 in Medicare and commercial, and $532 in Medicaid.

Table 11: Psychotherapy Usual Care Costs

Component	Unit Cost	CPT Code
Intake appointment and diagnostic evaluation	$172.10	90791
Psychotherapy session	$103.19	90834

Notes: CPT = Current Procedural Terminology.

Virtual Solution Program Costs: Program costs for each solution category are described below.

- Self-guided solutions: Pricing information from market analytic reports estimated these solutions cost about $2 per member per month or less. The model assumes an average monthly solution price of $2 per member per month, or $24 per member per year, with no variation across plan type and covered for the entire one-million-member plan.
- Prescription Digital Therapeutics: Beginning January 1, 2025, CMS established three new payment codes that will enable reimbursement for FDA-cleared PDTs.[29] The initial code covers the supply of the device (i.e., software). The subsequent two codes will cover reimbursement to the provider for treatment management services on a monthly basis. Publicly available pricing for PDTs currently range between $200 to $400.[30,31] The model assumes the low end of the range at an annual reimbursement rate of $200 for the device supply and $40 per month for two months of billing of treatment management per user for a single treatment episode of anxiety and depression
- Blended Care solutions: Based on market analysis reports, vendor-supplied pricing, and published return on investment reports, per member per month prices average about $6 across the entire plan membership. Companies report that those who engage with the solution typically use about 6 to 8 sessions, including a mix of coaching and therapy. Prices for coaching sessions average $84 and therapy sessions average $143. Therefore, for blended care solutions the model assumes an average monthly solution price of $6 per member per month, or $72 per year, and an added cost of $792 per engaged user per year, based on an average utilization of 7 sessions.

Healthcare Resource Use and Productivity Costs: Annual HCRU and productivity costs are applied based on disease severity from real-world studies in depression and anxiety.[32,33] The model assumes the reported costs apply to the mid-point estimate of the GAD-7 and PHQ-9

score ranges from the studies for each level of depression and anxiety severity, respectively. These costs are presented in Table 12.

Table 12: Annual HCRU and Productivity Costs for Depression and Anxiety by Severity

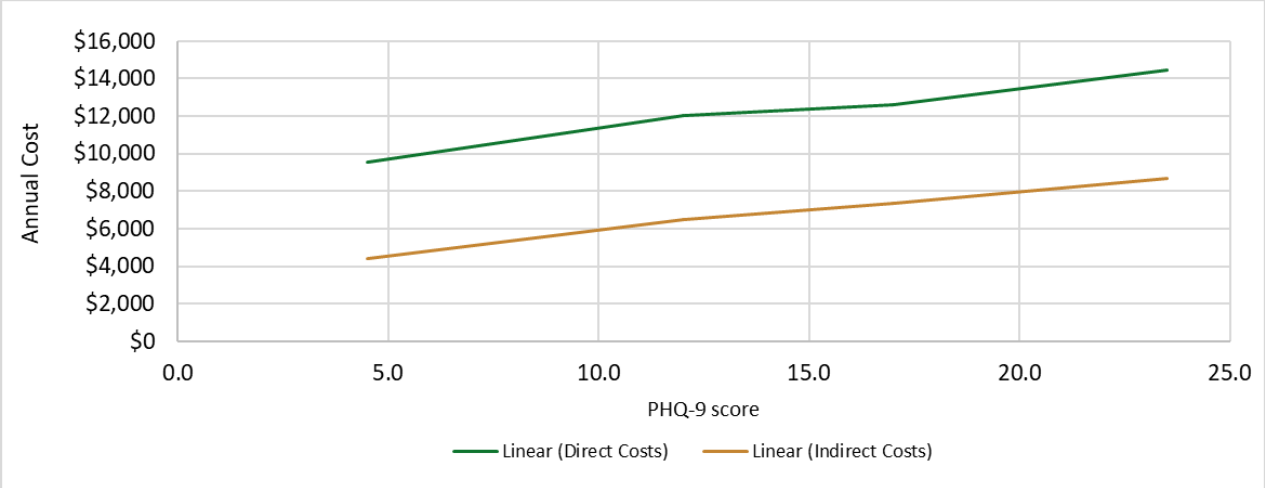
Anxiety Costs				Depression Costs			
Severity	GAD-7 mid-point	HCRU costs	Productivity costs	Severity	PHQ-9 mid-point	HCRU costs	Productivity costs
None	2.0	$7,175	$7,933	Minimal/Mild	4.5	$8,220	$4,490
Mild-moderate	9.5	$8,061	$10,400	Moderate	12.0	$10,353	$6,537
Severe	18.0	$11,067	$10,058	Moderately Severe	17.0	$10,819	$7,438
				Severe	23.5	$12,433	$8,797

Notes: GAD-7 = Generalized Anxiety Disorder-7; HCRU = healthcare resource use; PHQ-9 = Patient Health Questionnaire-9.

The model assumes a linear relationship between costs and GAD-7 and PHQ-9 point estimates, which is presented visually in Figure 3 and Figure 4. HCRU and productivity costs were applied based on resulting PHQ-9 and GAD-7 scores for the virtual solution and usual care arms, informed by the relevant clinical studies. Resulting scores determined which linear equation was used to inform annual costs. For example, if patients in a treatment arm had a resulting GAD-7 of 8, the slope and intercept to derive their costs would be informed by the assumed linear relationship between the none (GAD-7=2.0) and mild-moderate (GAD-7=9.5) severity levels for each cost.

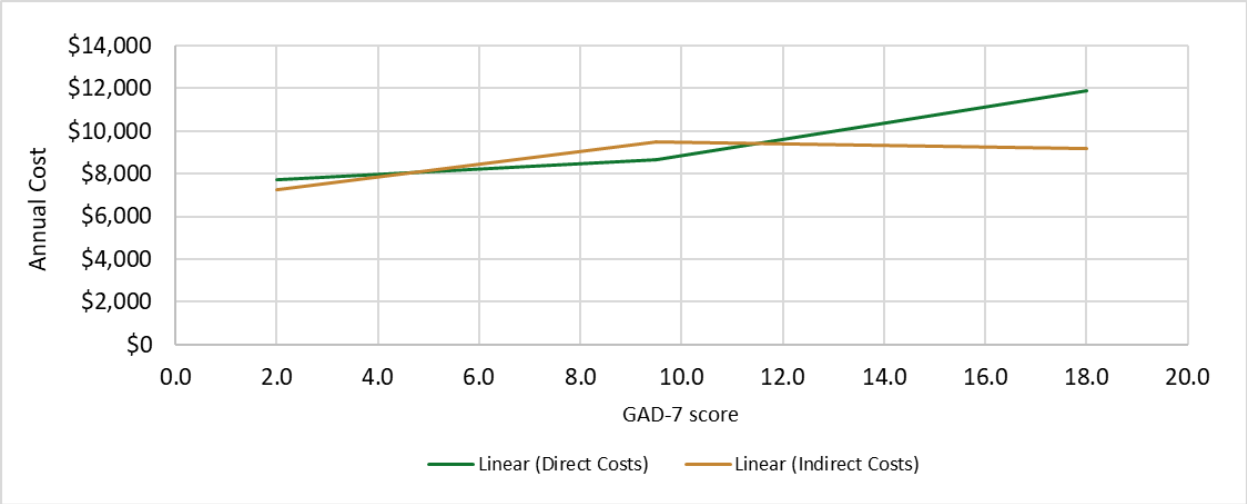
The slopes of the derived linear equations can be found in Table 13. The slopes can be interpreted as the change in HCRU or productivity costs based on a 1-point increase in GAD-7 or PHQ-9 score.

Figure 3: Annual Costs by PHQ-9 Score



Notes: PHQ-9 = Patient Health Questionnaire-9.

Figure 4: Annual Costs by GAD-7 Score



Notes: GAD-7 = Generalized Anxiety Disorder-7.

Table 13: Difference in Annual Costs Based on 1-point Increase in GAD-7 or PHQ-9

Condition	Severity	Plan	HCRU Costs	Productivity Costs
Anxiety	Between none and mild-moderate (GAD-7 <9.5)	Commercial	$127	$300
		Medicare	$70	$57
		Medicaid	$49	$215
	Between mild-moderate and severe moderate (GAD-7 ≥9.5)	Commercial	$380	-$37
		Medicare	$209	-$7
		Medicaid	$146	-$26
Depression	Between mild and moderate (PHQ-9 <12)	Commercial	$331	$270
		Medicare	$182	$50
		Medicaid	$127	$194
	Between moderate and moderately severe (PHQ-9 <17)	Commercial	$108	$178
		Medicare	$60	$33
		Medicaid	$42	$128
	Between moderately severe and severe (PHQ-9 ≥17)	Commercial	$289	$207
		Medicare	$159	$38
		Medicaid	$111	$148

Notes: GAD-7 = Generalized Anxiety Disorder-7. PHQ-9 = Patient Health Questionnaire-9.

Productivity costs are included as a scenario analysis and are not adjusted by plan given that productivity costs aren't incurred by a payer. Additionally, productivity costs are adjusted by the proportion of the population that are employed. For commercial, Medicare, and Medicaid, this is assumed to be 85.0%[34], 15.8%[35], and 61.0%[36], respectively.

Clinical Inputs: Treatment effectiveness in terms of change in GAD-7 and PHQ-9 from baseline was informed by clinical studies from the systematic literature review of primary outcomes and

estimates weighted average within group changes from baseline for each virtual solution approach and corresponding usual care or no psychotherapy control arms. Inputs used in the model are presented in Table 14 and Table 15. The corresponding clinical score is used to inform annual HCRU and productivity cost.

Table 14: Weighted Average Reductions for Depression

Treatment Arm/Approach	Baseline PHQ-9		Reduction in PHQ-9		Resulting PHQ-9	
	DHT	Control	DHT	Control	DHT	Control
Self-Guided Solutions						
No Psychotherapy	14.9	14.9	6.9	3.1	8.0	11.8
Usual Care	12.1	12.0	4.6	2.5	7.5	9.5
Prescription Digital Therapeutics						
Usual Care	15.4	14.9	5.9	3.7	9.5	11.2
Blended-Care Solutions						
No Psychotherapy	15.0	14.9	7.7	3.1	7.5	10.8
Usual Care	14.2	12.5	5.9	2.6	7.3	11.9

Notes: DHT = digital health technology. PHQ-9 = Patient Health Questionnaire-9. Differences may not sum due to rounding.

Table 15: Weighted Average Reductions for Anxiety

Treatment Arm/Approach	Baseline GAD-7		Reduction in GAD-7		Resulting GAD-7	
	DHT	Control	DHT	Control	DHT	Control
Self-Guided Solutions						
No Psychotherapy	11.7	11.6	4.6	2.5	7.1	9.2
Usual Care	10.8	10.7	3.5	2.1	7.3	8.6
Prescription Digital Therapeutics						
Usual Care	13.3	13.5	5.6	3.4	7.6	10.1
Blended-Care Solutions						
No Psychotherapy	12.5	11.6	6.2	2.5	6.2	9.8
Usual Care	13.0	10.3	5.5	1.9	5.9	9.6

Notes: DHT = digital health technology. GAD-7 = Generalized Anxiety Disorder-7. Differences may not sum due to rounding.

Appendix B – SLR Studies, Company-specific Clinical Citations and HCRU Data

Appendix B-1 – 130 Articles Included in the SLR

Study Articles	Article Type	Study Category	Data Source	Full Reference
Big Health				
Carl 2020	Full Text	I	Online Databases & Conference Proceedings	Carl, Jenna R., Christopher B. Miller, Alasdair L. Henry, et al., "Efficacy of Digital Cognitive Behavioral Therapy for Moderate-to-Severe Symptoms of Generalized Anxiety Disorder: A Randomized Controlled Trial," *Depression and Anxiety* 37, no. 12 (2020): 1168–1178. https://doi.org/10.1002/da.23079
Hall 2024†	Abstract/Poster	I	Online Databases & Conference Proceedings	Hall, Shana, Eileen Y. Wong, Dani Bradley, et al., "Efficacy and Safety of a Scalable App-Based Depression Program in Adults," poster presented at ADAA Annual Conference, Boston, MA, April 11–14, 2024.
Wong 2023	Abstract/Poster	I	Online Databases & Conference Proceedings	Wong, Eileen Y., Nishat Bhuiyan, Alasdair L. Henry, et al., "Domains of Impairment in GAD: Improvements in Patient Generated Concerns After Digital CBT," poster presented at the Society for Digital Mental Health Annual Meeting, Virtual, June 20–21, 2023.
FDA, K233872, (Daylight)	510(k)	I	Company-provided Data	FDA, K233872, (Daylight, Big Health), U.S Food & Drug Administration letter of response to Big Health, Inc. 510(k) premarket notification of intent for Daylight, August 1, 2024. https://www.accessdata.fda.gov/cdrh_docs/pdf23/K233872.pdf
Brightside Health				
Belanger 2022a	Full Text	O	Online Databases & Conference Proceedings	Belanger, Heather G., and Mirène Winsberg. "Do Older Adults Benefit from Telepsychiatric Care: Comparison to Younger Adults," *Frontiers in Psychiatry* 13 (2022): 998401. https://doi.org/10.3389/fpsyt.2022.998401
Belanger 2022b	Full Text	O	Online Databases & Conference Proceedings	Belanger, Heather G., and Mirène Winsberg. "Exploring Social Determinants of Health: Comparing Lower and Higher Income Individuals Participating in Telepsychiatric Care for Depression," *Frontiers in Psychiatry* 13 (2023): 1026361. https://doi.org/10.3389/fpsyt.2022.1026361
Dario Health				
Fundoiano-Hershcovitz 2023	Full Text	O	Online Databases & Conference Proceedings	Fundoiano-Hershcovitz, Yifat, Inbar Breuer Asher, Marilyn D. Ritholz, et al., "Specifying the Efficacy of Digital Therapeutic Tools for Depression and Anxiety: Retrospective, 2-Cohort, Real-World Analysis," *Journal of Medical Internet Research* 25 (2023): e47350. https://doi.org/10.2196/47350
Stoeckl 2023	Abstract/Poster	O	Online Databases & Conference Proceedings	Stoeckl, S. E., R. Henry, and E. M. Boucher. "Race-Based Differences in Engagement and Outcomes in a Digital Mental Health Intervention," poster presented at the Anxiety and Depression Association of America Annual Conference, Washington, DC, 13–16, 2023.

Study Articles	Article Type	Study Category	Data Source	Full Reference
Ward 2022	Abstract/Poster	O	Online Databases & Conference Proceedings	Ward, B. Haley, "Assessing the Effects of a Digital Mental Health Intervention in Older Adults with Real-World User Data." In Proceedings of the Anxiety and Depression Conference, Denver, CO, 2022.
Headspace				
Abbott 2023	Full Text	I	Online Databases & Conference Proceedings	Abbott, Deah, Caleb W. Lack, and Page Anderson. "Does Using a Mindfulness App Reduce Anxiety and Worry? A Randomized-Controlled Trial," *Journal of Cognitive Psychotherapy* 37, no. 1 (2023): 26–42. https://doi.org/10.1891/jcpsy-d-20-00058
Kunkle 2020	Full Text	O	Online Databases & Conference Proceedings	Kunkle, Sarah, Manny Yip, and Justin Hunt, "Evaluation of an On-Demand Mental Health System for Depression Symptoms: Retrospective Observational Study," *Journal of Medical Internet Research* 22, no. 6 (2020): e17902. https://doi.org/10.2196/17902
Kunkle 2021	Full Text	O	Online Databases & Conference Proceedings	Kunkle, Sarah, Manny Yip, Justin Hunt, et al., "Association Between Care Utilization and Anxiety Outcomes in an On-Demand Mental Health System: Retrospective Observational Study," *JMIR Formative Research* 5, no. 1 (2021): e24662. https://doi.org/10.2196/24662
Shih 2022a	Full Text	O	Company-provided Data	Shih, Emily, Brandon S. Aylward, Sarah Kunkle, et al., "Health-Related Quality of Life Among Members Using an On-Demand Behavioral Health Platform: Pilot Observational Study," *JMIR Formative Research* 6, no. 7 (2022): e35352. https://doi.org/10.2196/35352
Shih 2022b	Full Text	O	Company-provided Data	Shih, Emily, Brandon S. Aylward, Sarah Kunkle, et al., "Association Between Care Modality and Use with Treatment Response Among Members Accessing Virtual Mental Health Services: Real-World Observational Study," *JMIR Formative Research* 6, no. 7 (2022): e36956. https://doi.org/10.2196/36956
Horwitz 2024	Full Text	I	Online Databases & Conference Proceedings	Horwitz, Adam G., Elizabeth D. Mills, Srijan Sen, et al., "Comparative Effectiveness of Three Digital Interventions for Adults Seeking Psychiatric Services: A Randomized Clinical Trial," *JAMA Network Open* 7, no. 7 (2024): e2422115. https://doi.org/10.1001/jamanetworkopen.2024.22115
Koa Health				
Wilhelm 2024	Full Text	I	Online Databases & Conference Proceedings	Wilhelm, Sabine, Emily E. Bernstein, Kate H. Bentley, et al., "Feasibility, Acceptability, and Preliminary Efficacy of a Smartphone App–Led Cognitive Behavioral Therapy for Depression Under Therapist Supervision: Open Trial," *JMIR Mental Health* 11, no. 1 (2024): e53998. https://doi.org/10.2196/53998
Lyra Health				
Das 2022	Full Text	O	Online Databases & Conference Proceedings	Das, Smita, Jane Wang, Shih-Yin Chen, et al., "Telemental Health Collaborative Care Medication Management: Implementation and Outcomes," *Telemedicine and e-Health* 28, no. 7 (2022): 1035–1043. https://doi.org/10.1089/tmj.2021.0401

Study Articles	Article Type	Study Category	Data Source	Full Reference
Espel-Huynh 2024	Full Text	O	Company-provided Data	Espel-Huynh, Hallie M., Lu Wang, Emily G. Lattie, et al., "Clinical Effects of Asynchronous Provider-Guided Practice Sessions During Blended Care Therapy for Anxiety and Depression: Pragmatic Retrospective Cohort Study," *Journal of Medical Internet Research* 26 (2024): e60502. https://doi.org/10.2196/60502
Grasso 2022	Full Text	O	Company-provided Data	Grasso, Joseph R., Shih Yin Chen, and Renee Schneider, "Examining Changes in Presenteeism and Clinical Symptoms in a Workforce Mental Health Benefits Program," *Journal of Workplace Behavioral Health* 37, no. 4 (2022): 253–266. https://doi.org/10.1080/15555240.2022.2097087
Lee 2025	Full Text	O	Company-provided Data	Lee, Jennifer L., Shih-Yin Chen, Robert E. Wickham, et al., "Clinical Outcomes from Blended Care Therapy for Anxiety and Depression in the Year After Treatment," *Internet Interventions* 39 (2025): 100798. https://doi.org/10.1016/j.invent.2024.100798
Lungu 2020	Full Text	O	Online Databases & Conference Proceedings	Lungu, Anita, Janie Jihee Jun, Okhtay Azarmanesh, et al., "Blended Care-Cognitive Behavioral Therapy for Depression and Anxiety in Real-World Settings: Pragmatic Retrospective Study," *Journal of Medical Internet Research* 22, no. 7 (2020): e18723. https://doi.org/10.2196/18723
Lungu 2022	Full Text	O	Online Databases & Conference Proceedings	Lungu, Anita, Robert E. Wickham, Shih-Yin Chen, et al., "Component Analysis of a Synchronous and Asynchronous Blended Care CBT Intervention for Symptoms of Depression and Anxiety: Pragmatic Retrospective Study," *Internet Interventions* 28 (2022): 100536. https://doi.org/10.1016/j.invent.2022.100536
Owusu 2022	Full Text	O	Online Databases & Conference Proceedings	Owusu, Jocelynn T., Pam Wang, Robert E. Wickham, et al., "Real-World Evaluation of a Large-Scale Blended Care-Cognitive Behavioral Therapy Program for Symptoms of Anxiety and Depression," *Telemedicine and E-Health* (2022): 1412–1420. https://doi.org/10.1089/tmj.2021.0590
Owusu 2023a	Full Text	O	Online Databases & Conference Proceedings	Owusu, Jocelynn T., Pam Wang, Robert E. Wickham, et al., "Blended Care Therapy for Depression and Anxiety: Outcomes Across Diverse Racial and Ethnic Groups," *Journal of Racial and Ethnic Health Disparities* 10, no. 6 (2023): 2731–2743. https://doi.org/10.1007/s40615-022-01450-z
Owusu 2023b	Full Text	O	Online Databases & Conference Proceedings	Owusu, Jocelynn T., Pam Wang, Robert E. Wickham, et al., "Outcomes of a Live Messaging, Blended Care Coaching Program Among Adults with Symptoms of Anxiety: Pragmatic Retrospective Cohort Study," *JMIR Formative Research* 7 (2023): e44138. https://doi.org/10.2196/44138
Schneider 2020	Full Text	O	Online Databases & Conference Proceedings	Schneider, Renee A., Shih Yin Chen, Anita Lungu, et al., "Treating Suicidal Ideation in the Context of Depression," BMC Psychiatry 20, no. 1 (2020): 497. https://doi.org/10.1186/s12888-020-02894-5

Study Articles	Article Type	Study Category	Data Source	Full Reference
Wu 2021a	Full Text	O	Online Databases & Conference Proceedings	Wu, Monica S., Shih-Yin Chen, Robert E. Wickham, et al., "Outcomes of a Blended Care Coaching Program for Clients Presenting with Moderate Levels of Anxiety and Depression: Pragmatic Retrospective Study," *JMIR Mental Health* 8, no. 10 (2021): e32100. https://doi.org/10.2196/32100
Wu 2021b	Full Text	O	Online Databases & Conference Proceedings	Wu, Monica S., Robert E. Wickham, Shih-Yin Chen, et al., "Examining the Impact of Digital Components Across Different Phases of Treatment in a Blended Care Cognitive Behavioral Therapy Intervention for Depression and Anxiety: Pragmatic Retrospective Study," *JMIR Formative Research* 5, no. 12 (2021): e33452. https://doi.org/10.2196/33452
Wu 2022	Full Text	O	Online Databases & Conference Proceedings	Wu, Monica S., Shih-Yin Chen, Robert E. Wickham, et al., "Predicting Non-Initiation of Care and Dropout in a Blended Care CBT Intervention: Impact of Early Digital Engagement, Sociodemographic, and Clinical Factors," *Digital Health* 8 (2022). https://doi.org/10.1177/20552076221133760
Wu 2024	Full Text	O	Company-provided Data	Wu, Monica S., Robert E. Wickham, Shih-Yin Chen, et al., "A Large-Scale Evaluation of Therapeutic Alliance and Symptom Trajectories of Depression and Anxiety in Blended Care Therapy," *PLOS ONE* 19, no. 11 (2024): e0313112. https://doi.org/10.1371/journal.pone.0313112
Meru Health				
Alfaro 2024	Full Text	I	Online Databases & Conference Proceedings	Alfaro, Ana J., Joseph Wielgosz, Eric Kuhn, et al., "Determinants and Outcome Correlates of Engagement with a Mobile Mental Health Intervention for Depression and Anxiety in Middle-Aged and Older Adults," *Journal of Clinical Psychology* 80, no. 3 (2024): 509–521. https://doi.org/10.1002/jclp.23636
Aschbacher 2023	Full Text	O	Online Databases & Conference Proceedings	Aschbacher, Kirstin, Luisa M. Rivera, Silvan Hornstein, et al., "Longitudinal Patterns of Engagement and Clinical Outcomes: Results from a Therapist-Supported Digital Mental Health Intervention," *Psychosomatic Medicine* 85, no. 7 (2023): 651–658. https://doi.org/10.1097/psy.0000000000001230
Economides 2019	Full Text	I	Online Databases & Conference Proceedings	Economides, Marcos, Kristian Ranta, Albert Nazander, et al., "Long-Term Outcomes of a Therapist-Supported, Smartphone-Based Intervention for Elevated Symptoms of Depression and Anxiety: Quasiexperimental, Pre-Postintervention Study," *JMIR mHealth and uHealth* 7, no. 8 (2019): e14284. https://doi.org/10.2196/14284
Economides 2020	Full Text	I	Online Databases & Conference Proceedings	Economides, Marcos, Paul Lehrer, Kristian Ranta, et al., "Feasibility and Efficacy of the Addition of Heart Rate Variability Biofeedback to a Remote Digital Health Intervention for Depression," *Applied Psychophysiology and Biofeedback* 45 (2020): 75–86. https://doi.org/10.1007/s10484-020-09458-z

Study Articles	Article Type	Study Category	Data Source	Full Reference
Forman-Hoffman 2021	Full Text	O	Online Databases & Conference Proceedings	Forman-Hoffman, Valerie L., Benjamin W. Nelson, Kristian Ranta, et al., "Significant Reduction in Depressive Symptoms Among Patients with Moderately-Severe to Severe Depressive Symptoms After Participation in a Therapist-Supported, Evidence-Based Mobile Health Program Delivered via a Smartphone App," *Internet Interventions* 25 (2021): 100408. https://doi.org/10.1016/j.invent.2021.100408
Forman-Hoffman 2024a	Full Text	I	Online Databases & Conference Proceedings	Forman-Hoffman, Valerie L., Samuel Sihvonen, Joseph Wielgosz, et al., "Therapist-Supported Digital Mental Health Intervention for Depressive Symptoms: A Randomized Clinical Trial," *Journal of Affective Disorders* 349 (2024): 494–501. https://doi.org/10.1016/j.jad.2024.01.057
Gould 2021a	Full Text	I	Online Databases & Conference Proceedings	Gould, Christine E., Chalise Carlson, Flora Ma, et al., "Effects of Mobile App–Based Intervention for Depression in Middle-Aged and Older Adults: Mixed Methods Feasibility Study," *JMIR Formative Research* 5, no. 6 (2021): e25808. https://doi.org/10.2196/25808
Gould 2021b	Full Text	I	Online Databases & Conference Proceedings	Gould, Christine E., Chalise Carlson, Ana Jessica Alfaro, et al., "Changes in Quality of Life and Loneliness Among Middle-Aged and Older Adults Participating in Therapist-Guided Digital Mental Health Intervention," *Frontiers in Public Health* 9 (2021): 746904. https://doi.org/10.3389/fpubh.2021.746904
Hornstein 2021	Full Text	O	Online Databases & Conference Proceedings	Hornstein, Silvan, Valerie Forman-Hoffman, Albert Nazander, et al., "Predicting Therapy Outcome in a Digital Mental Health Intervention for Depression and Anxiety: A Machine Learning Approach," *Digital Health* 7 (2021): 20552076211060659. https://doi.org/10.1177/20552076211060659
Nelson 2024a	Full Text	I	Online Databases & Conference Proceedings	Nelson, Benjamin W., Nicholas C. Peiper, and Valerie L. Forman-Hoffman, "Digital Mental Health Interventions as Stand-Alone vs. Augmented Treatment as Usual," *BMC Public Health* 24, no. 1 (2024): 969. https://doi.org/10.1186/s12889-024-18412-1
Nelson 2024b	Full Text	O	Online Databases & Conference Proceedings	Nelson, Benjamin W., Nicholas C. Peiper, Kirstin Aschbacher, et al., "Evidence-Based Therapist-Supported Digital Mental Health Intervention for Patients Experiencing Medical Multimorbidity: A Retrospective Cohort Intent-to-Treat Study," *Psychosomatic Medicine* 86, no. 6 (2024): 547–554. https://doi.org/10.1097/psy.0000000000001319
Peiper 2023	Full Text	O	Online Databases & Conference Proceedings	Peiper, Nicholas C., Benjamin W. Nelson, Kirstin Aschbacher, et al., "Trajectories of Depression Symptoms in a Therapist-Supported Digital Mental Health Intervention: A Repeated Measures Latent Profile Analysis," *Social Psychiatry and Psychiatric Epidemiology* 58, no. 8 (2023): 1237–1246. https://doi.org/10.1007/s00127-022-02402-y
Pettitt 2024	Full Text	O	Online Databases & Conference Proceedings	Pettitt, Adam K., Benjamin W. Nelson, Valerie L. Forman-Hoffman, et al., "Longitudinal Outcomes of a Therapist-Supported Digital Mental Health Intervention for Depression and Anxiety Symptoms: A Retrospective Cohort Study," *Psychology and Psychotherapy: Theory, Research and Practice* 97, no. 2 (2024): 288–300. https://doi.org/10.1111/papt.12517

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Nowels 2023*	Presentation	O	Company-provided Data	Nowels, Molly, Danielle H. Llaneza, Lilla Brody, et al., "Engaging with One-on-One Modalities Increases Digital mHealth Resource Engagement: A Prospective Longitudinal Study," 2023. Presentation at the Society for Digital Mental Health Annual Meeting.
Nowels 2024	Full Text	O	Company-provided Data	Nowels, Molly Aideen, Meghan McDarby, Lilla Brody, et al., "Predictors of Engagement in Multiple Modalities of Digital Mental Health Treatments: Longitudinal Study," *Journal of Medical Internet Research* 26 (2024): e48696. https://doi.org/10.2196/48696
Prescott 2022	Full Text	O	Online Databases & Conference Proceedings	Prescott, Maximo R., Sara J. Sagui-Henson, Camille E. Welcome Chamberlain, et al., "Real World Effectiveness of Digital Mental Health Services During the COVID-19 Pandemic," *PloS One* 17, no. 8 (2022): e0272162. https://doi.org/10.1371/journal.pone.0272162
Roos 2023	Abstract/Poster	O	Online Databases & Conference Proceedings	Roos, L., S. Sagui-Henson, C. Castro Sweet, et al., "Review of Engagement and Clinical Outcomes of a Digital Mental Health Benefit," *Psychosomatic Medicine* 85, no. 4 (2023): A153.
Roos 2024	Full Text	O	Online Databases & Conference Proceedings	Roos, Lydia G., Sara J. Sagui-Henson, Cynthia Castro Sweet, et al., "Improvement and Maintenance of Clinical Outcomes in a Digital Mental Health Platform: Findings from a Longitudinal Observational Real-World Study," *JMIR mHealth and uHealth* 12 (2024): e48298. https://doi.org/10.2196/48298
Sagui-Henson 2023*	Presentation	O	Company-provided Data	Sagui-Henson, Sara J., Welcome Chamberlain, Camille E., Smith, Brooke J., et al., "Equity in Digital Mental Health Services: Race and Ethnic Comparisons of Engagement and Effectiveness," presentation at the 44th Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, Phoenix, AZ, April 26–29, 2023.
Sagui-Henson 2024	Full Text	O	Company-provided Data	Sagui Henson, Sara J., Camille E. Welcome Chamberlain, Brooke J. Smith, et al., "Utilization, Satisfaction, and Clinical Outcomes of People of Color and White Adults Using an Employer-Sponsored Digital Mental Health Platform, "*International Journal of Environmental Research and Public Health* 21, no. 12 (2024): 1660. https://doi.org/10.3390/ijerph21121660
Optum				
Anton 2021	Full Text	O	Online Databases & Conference Proceedings	Anton, Margaret T., Heidi Mochari Greenberger, Evie Andreopoulos, et al., "Evaluation of a Commercial Mobile Health App for Depression and Anxiety (AbleTo Digital+): Retrospective Cohort Study," *JMIR Formative Research* 5, no. 9 (2021): e27570. https://doi.org/10.2196/27570
Anton 2022	Abstract/Poster	O	Online Databases & Conference Proceedings	Anton, P. Margaret, “Prevalence and Change in Work Productivity and Activity Impairment Among Employed U.S. Adults Completing a Cognitive Behavioral Telehealth Treatment for Depression and Anxiety.” In Proceedings of the Anxiety and Depression Conference, Denver, CO, 2022.

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Renn 2022	Abstract/Poster	I	Online Databases & Conference Proceedings	Renn, Brenna, Teresa Walker, Matthew Schurr, et al., "Preliminary Testing of a Digital Mental Health Intervention for Depression and Anxiety," poster presented at the ADAA Annual Conference, Denver, CO, March 17–20, 2022.
Renn 2024	Full Text	I	Online Databases & Conference Proceedings	Renn, Brenna N., Teresa J. Walker, Brian Edds, et al., "Naturalistic Use of a Digital Mental Health Intervention for Depression and Anxiety: A Randomized Clinical Trial," *Journal of Affective Disorders* 368 (2025): 429–438. https://doi.org/10.1016/j.jad.2024.09.104
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Cochran 2024a	Abstract/Poster	I	Company-provided Data	Cochran, Jeffrey, Jessica Ash, Zhen Zhang, Huan Jiang, Brian Rothman, Tarolyn Carlton, Timothy Peters-Strickland, Mariya Petrova, Daniel Carpenter, and Ainslie Forbes. "Adherence and Engagement Metrics With the Novel Prescription Digital Therapeutic, CT-152," Poster presented at Psych Congress 2024 Annual Meeting, Boston, MA, October 29–November 2, 2024.
Cochran 2024b	Abstract/Poster	I	Company-provided Data	Cochran, Jeffrey, Huan Jiang, Hossain Saboonchi, et al., "CT-152, a Prescription Digital Therapeutic for Major Depressive Disorder: A Real-World Analysis," poster presented at Psych Congress 2024 Annual Meeting, Boston, MA, October 29–November 2, 2024.
Cochran 2024c	Abstract/Poster	I	Company-provided Data	Cochran, Jeffrey, Jessica Ash, Zhen Zhang, et al., "Emotional Faces Memory Task Performance and Clinical Outcomes for the Novel Prescription Digital Therapeutic, CT-152," poster presented at Psych Congress Annual Meeting, Boston, MA, October 29–November 2, 2024.
Iacoviello 2018	Full Text	I	Online Databases & Conference Proceedings	Iacoviello, Brian M., James W. Murrough, Megan M. Hoch, et al., "A Randomized, Controlled Pilot Trial of the Emotional Faces Memory Task: A Digital Therapeutic for Depression," *NPJ Digital Medicine* 1, no. 1 (2018): 21. https://doi.org/10.1038/s41746-018-0025-5
Rothman 2024	Abstract/Poster	I	Company-provided Data	Rothman, Brian, Mary Slomkowski, Austin Speier, et al., "A Prescription Digital Therapeutic, CT-152, for Treating Major Depressive Disorder: Future Research Will Focus on the Real-World Adherence and Engagement of CT-152 and Further Explore the Role of This Treatment Modality in Various Patient Populations," poster presented at Psych Congress 2024 Annual Meeting, Boston, MA, October 29-November 2, 2024.
FDA, K231209, (Rejoyn)	510(k)	I	Company-provided Data	FDA, K231209, (Rejoyn, Otsuka America Pharmaceutical), U.S Food & Drug Administration letter of response to Otsuka America Pharmaceutical, Inc. 510(k) premarket notification of intent for Rejoyn, FDA, March 20, 2024. https://www.accessdata.fda.gov/cdrh_docs/pdf23/K231209.pdf

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Sharif-Sidi 2021	Full Text	O	Online Databases & Conference Proceedings	Sharif-Sidi, Zakariyah, Christine Shen, William Wong, et al., "Addressing Depression and Behavioral Health Needs Through a Digital Program at Scale," *Healthcare* 9, no. 2 (2021): 100521. https://doi.org/10.1016/j.hjdsi.2021.100521
Horwitz 2024	Full Text	I	Online Databases & Conference Proceedings	Horwitz, Adam G., Elizabeth D. Mills, Srijan Sen, et al., "Comparative Effectiveness of Three Digital Interventions for Adults Seeking Psychiatric Services: A Randomized Clinical Trial," *JAMA Network Open* 7, no. 7 (2024): e2422115. https://doi.org/10.1001/jamanetworkopen.2024.22115
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Bondar 2022	Full Text	O	Online Databases & Conference Proceedings	Bondar, Julia, Cecina Babich Morrow, Ralitza Gueorguieva, et al., "Clinical and Financial Outcomes Associated with a Workplace Mental Health Program Before and During the COVID-19 Pandemic," *JAMA Network Open* 5, no. 6 (2022): e2216349. https://doi.org/10.1001/jamanetworkopen.2022.16349
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Areán 2024	Full Text	I	Online Databases & Conference Proceedings	Areán, Patricia A., Michael D. Pullmann, Isabell R. Griffith Fillipo, et al., "Randomized Trial of the Effectiveness of Videoconferencing-Based Versus Message-Based Psychotherapy on Depression," *Psychiatric Services* 75, no. 12 (2024): 1184–1191. https://doi.org/10.1176/appi.ps.20230176
Choudhary 2023	Abstract/Poster	O	Online Databases & Conference Proceedings	Choudhary, Varun, "Is Everyone Really Anxious and Depressed?: A Closer Look at Managing Mental Health," *Journal of General Internal Medicine* 38 (2023): S682. https://doi.org/10.1007/s11606-023-08226-z
Darnell 2022	Full Text	O	Online Databases & Conference Proceedings	Darnell, Doyanne, Michael D. Pullmann, Thomas D. Hull, et al., "Predictors of Disengagement and Symptom Improvement Among Adults with Depression Enrolled in Talkspace, a Technology-Mediated Psychotherapy Platform: Naturalistic Observational Study," *JMIR Formative Research* 6, no. 6 (2022): e36521. https://doi.org/10.2196/36521
DellaCrosse 2018	Full Text	O	Company-provided Data	DellaCrosse, Meghan, Kush Mahan, and Thomas D. Hull, "The Effect of Messaging Therapy for Depression and Anxiety on Employee Productivity," *Journal of Technology in Behavioral Science* 4 (2019): 1–5. https://doi.org/10.1007/s41347-018-0064-4
Griffith Fillipo 2022	Full Text	I	Online Databases & Conference Proceedings	Griffith Fillipo, Isabell R., Michael D. Pullmann, Thomas D. Hull, et al., "Participant Retention in a Fully Remote Trial of Digital Psychotherapy: Comparison of Incentive Types," *Frontiers in Digital Health* 4 (2022): 963741. https://doi.org/10.3389/fdgth.2022.963741
Hull 2020	Full Text	O	Online Databases & Conference Proceedings	Hull, Thomas D., Matteo Malgaroli, Philippa S. Connolly, et al., "Two-Way Messaging Therapy for Depression and Anxiety: Longitudinal Response Trajectories." *BMC Psychiatry* 20 (2020): 1–12. https://doi.org/10.1186/s12888-020-02721-x

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Raue 2022	Full Text	O	Online Databases & Conference Proceedings	Raue, Patrick J., Nicole Fridling, Jiyoung Song, et al., "Message-Based Psychotherapy for Older Adults: A Cohort Comparison Study," *Frontiers in Psychiatry* 13 (2022): 951354. https://doi.org/10.3389/fpsyt.2022.951354
Song 2023	Full Text	I	Online Databases & Conference Proceedings	Song, Jiyoung, Boris Litvin, Ryan Allred, et al., "Comparing Message-Based Psychotherapy to Once-Weekly, Video-Based Psychotherapy for Moderate Depression: Randomized Controlled Trial," *Journal of Medical Internet Research* 25 (2023): e46052. https://doi.org/10.2196/46052
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Dzubur 2023	Full Text	O	Online Databases & Conference Proceedings	Dzubur, Eldin, Jessica Yu, Julia Hoffman, et al., "The Effect of a Digital Mental Health Program on Anxiety and Depression Symptoms: Retrospective Analysis of Clinical Severity," *JMIR Formative Research* 7, no. 1 (2023): e36596. https://doi.org/10.2196/36596
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Bisconti 2024	Full Text	I	Online Databases & Conference Proceedings	Bisconti, Nicholas, Mackenzie Odier, Matthew Becker, et al., "Feasibility and Acceptability of a Mobile App–Based TEAM-CBT (Testing Empathy Assessment Methods–Cognitive Behavioral Therapy) Intervention (Feeling Good) for Depression: Secondary Data Analysis," *JMIR Mental Health* 11, no. 1 (2024): e52369. https://doi.org/10.2196/52369
Bress 2024	Abstract/Poster	I	Online Databases & Conference Proceedings	Bress, Jennifer, Avital Falk, Maddy Schier, et al., "Adaptation of a Self-Guided Cognitive Behavioral Therapy App for Middle-Aged and Older Adults with Anxiety or Depression: Preliminary Acceptability, Feasibility, and Efficacy," *The American Journal of Geriatric Psychiatry* 32, no. 4 (2024): S129–S130. https://doi.org/10.1016/j.jagp.2024.01.218
Camacho 2023	Full Text	I	Online Databases & Conference Proceedings	Camacho, Erica, Sarah M. Chang, Danielle Currey, et al., "The Impact of Guided Versus Supportive Coaching on Mental Health App Engagement and Clinical Outcomes," *Health Informatics Journal* 29, no. 4 (2023): 14604582231215872. https://doi.org/10.1177/14604582231215872
Cavanagh 2018	Full Text	I	Online Databases & Conference Proceedings	Cavanagh, Kate, Bea Herbeck Belnap, Scott D. Rothenberger, et al., "My Care Manager, My Computer Therapy and Me: The Relationship Triangle in Computerized Cognitive Behavioural Therapy," *Internet Interventions* 11 (2018): 11–19. https://doi.org/10.1016/j.invent.2017.10.005
Chang 2023a	Full Text	I	Online Databases & Conference Proceedings	Chang, Sarah, Lucy Gray, and John Torous. "Smartphone App Engagement and Clinical Outcomes in a Hybrid Clinic," *Psychiatry Research* 319 (2023): 115015. https://doi.org/10.1016/j.psychres.2022.115015

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Chen 2020	Full Text	I	Online Databases & Conference Proceedings	Chen, Annie T., Krystal Slattery, Kathryn N. Tomasino, et al., "Challenges and Benefits of an Internet-Based Intervention with a Peer Support Component for Older Adults with Depression: Qualitative Analysis of Textual Data," *Journal of Medical Internet Research* 22, no. 6 (2020): e17586. https://doi.org/10.2196/17586
Chen 2024	Full Text	O	Online Databases & Conference Proceedings	Chen, Kelly, Erlend Lane, James Burns, et al., "The Digital Navigator: Standardizing Human Technology Support in App-Integrated Clinical Care," *Telemedicine and e-Health* 30, no. 7 (2024): e1963–e1970. https://doi.org/10.1089/tmj.2024.0023
Chiauzzi 2024	Full Text	I	Online Databases & Conference Proceedings	Chiauzzi, Emil, Andre Williams, Timothy Y. Mariano, et al., "Demographic and Clinical Characteristics Associated with Anxiety and Depressive Symptom Outcomes in Users of a Digital Mental Health Intervention Incorporating a Relational Agent," *BMC Psychiatry* 24, no. 1 (2024): 79. https://doi.org/10.1186/s12888-024-05532-6
Crawford 2024	Abstract/Poster	I	Online Databases & Conference Proceedings	Crawford, Christopher A., Audrey L. Shell, Timothy Lipuma, et al., "Effect of Modernized Collaborative Care for Depression on Individual Depressive Symptoms: Data from the EIMPACT Trial," *Psychosomatic Medicine* 86, no. 5 (2024): A176.
Dahne 2019a	Full Text	I	Online Databases & Conference Proceedings	Dahne, Jennifer, Anahi Collado, C. W. Lejuez, et al., "Pilot Randomized Controlled Trial of a Spanish-Language Behavioral Activation Mobile App (¡Aptívate!) for the Treatment of Depressive Symptoms Among United States Latinx Adults with Limited English Proficiency," *Journal of Affective Disorders* 250 (2019): 210–217. https://doi.org/10.1016/j.jad.2019.03.009
Dahne 2019b	Full Text	I	Online Databases & Conference Proceedings	Dahne, Jennifer, C. W. Lejuez, Vanessa A. Diaz, et al., "Pilot Randomized Trial of a Self-Help Behavioral Activation Mobile App for Utilization in Primary Care," *Behavior Therapy* 50, no. 4 (2019): 817–827. https://doi.org/10.1016/j.beth.2018.12.003
Davis 2024	Full Text	I	Online Databases & Conference Proceedings	Davis, Carter H., Marissa L. Donahue, Brandon A. Gaudiano, et al., "Adding Online Storytelling-Based Acceptance and Commitment Therapy to Antidepressant Treatment for Primary Care Patients: A Randomized Clinical Trial," *Cognitive Behaviour Therapy* 53, no. 1 (2024): 48–69. https://doi.org/10.1080/16506073.2023.2265560
Ezawa 2023	Full Text	O	Online Databases & Conference Proceedings	Ezawa, Iony D., Steven D. Hollon, and Noah Robinson, "Examining Predictors of Depression and Anxiety Symptom Change in Cognitive Behavioral Immersion: Observational Study," *JMIR Mental Health* 10, no. 1 (2023): e42377. https://doi.org/10.2196/42377
Ferguson 2024	Full Text	I	Online Databases & Conference Proceedings	Ferguson, IreLee, Grace George, Kevin O. Narine, et al., "Acceptability and Engagement of a Smartphone-Delivered Interpretation Bias Intervention in a Sample of Black and Latinx Adults: Open Trial," *JMIR Mental Health* 11 (2024): e56758. https://doi.org/10.2196/56758

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Forman-Hoffman 2023	Full Text	I	Online Databases & Conference Proceedings	Forman-Hoffman, Valerie L., Maddison C. Pirner, Megan Flom, et al., "Engagement, Satisfaction, and Mental Health Outcomes Across Different Residential Subgroup Users of a Digital Mental Health Relational Agent: Exploratory Single-Arm Study," *JMIR Formative Research* 7, no. 1 (2023): e46473. https://doi.org/10.2196/46473
Forman-Hoffman 2024b	Full Text	I	Online Databases & Conference Proceedings	Forman-Hoffman, Valerie L., Megan Flom, Robert Montgomery, et al., "Improvements in Work Productivity and Activity Impairment Among Adults with Anxiety or Depressive Symptoms Participating in a Relational Agent-Delivered Digital Mental Health Intervention," *Journal of Occupational and Environmental Medicine* 66, no. 3 (2023): e99–e105. https://doi.org/10.1097/jom.0000000000003038
Geramita 2018	Full Text	I	Online Databases & Conference Proceedings	Geramita, Emily M., Bea Herbeck Belnap, Kaleab Z. Abebe, et al., "The Association Between Increased Levels of Patient Engagement with an Internet Support Group and Improved Mental Health Outcomes at 6-Month Follow-Up: Post-Hoc Analyses from a Randomized Controlled Trial," *Journal of Medical Internet Research* 20, no. 7 (2018): e10402. https://doi.org/10.2196/10402
Graham 2020	Full Text	I	Online Databases & Conference Proceedings	Graham, Andrea K., Carolyn J. Greene, Mary J. Kwasny, et al., "Coached Mobile App Platform for the Treatment of Depression and Anxiety Among Primary Care Patients: A Randomized Clinical Trial," *JAMA Psychiatry* 77, no. 9 (2020): 906–914. https://doi.org/10.1001/jamapsychiatry.2020.1011
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Mehta 2021	Full Text	O	Online Databases & Conference Proceedings	Mehta, Ashish, Andrea Nicole Niles, Jose Hamilton Vargas, et al., "Acceptability and Effectiveness of Artificial Intelligence Therapy for Anxiety and Depression (Youper): Longitudinal Observational Study," *Journal of Medical Internet Research* 23, no. 6 (2021): e26771. https://doi.org/10.2196/26771
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Mohr 2019b	Full Text	I	Online Databases & Conference Proceedings	Mohr, David C., Stephen M. Schueller, Kathryn Noth Tomasino, et al., "Comparison of the Effects of Coaching and Receipt of App Recommendations on Depression, Anxiety, and Engagement in the IntelliCare Platform: Factorial Randomized Controlled Trial," *Journal of Medical Internet Research* 21, no. 8 (2019): e13609. https://doi.org/10.2196/13609
Morthland 2020	Full Text	I	Online Databases & Conference Proceedings	Morthland, Martin, Avani Shah, James T. Meadows, et al., "Development of an Audio and Computer Cognitive Behavioral Therapy for Depression in Older Adults," *Aging & Mental Health* 24, no. 8 (2020): 1207-1215. https://doi.org/10.1080/13607863.2019.1609901
Mullarkey 2020	Full Text	I	Online Databases & Conference Proceedings	Mullarkey, Michael C., Aliza T. Stein, Rahel Pearson, et al., "Network Analyses Reveal Which Symptoms Improve (or Not) Following an Internet Intervention (Deprexis) for Depression," *Depression and Anxiety* 37, no. 2 (2020): 115-124. https://doi.org/10.1002/da.22972

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Nicholas 2019	Full Text	I	Online Databases & Conference Proceedings	Nicholas, Jennifer, Kathryn E. Ringland, Andrea K. Graham, et al., "Stepping Up: Predictors of 'Stepping' within an iCBT Stepped-Care Intervention for Depression," *International Journal of Environmental Research and Public Health* 16, no. 23 (2019): 4689. https://doi.org/10.3390/ijerph16234689
Nicholas 2021	Full Text	I	Online Databases & Conference Proceedings	Nicholas, Jennifer, Ashley A. Knapp, Jessica L. Vergara, et al., "An Exploratory Brief Head-to-Head Non-Inferiority Comparison of an Internet-Based and a Telephone-Delivered CBT Intervention for Adults with Depression," *Journal of Affective Disorders* 281 (2021): 673-677. https://doi.org/10.1016/j.jad.2020.11.093
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Pajarito 2023	Abstract/Poster	I	Online Databases & Conference Proceedings	Pajarito, Sarah, Chiauzzi Emil, Andre Williams, et al., "Demographic and Clinical Characteristics Associated with Anxiety and Depressive Symptom Outcomes in Users of a Digital Mental Health Intervention Incorporating a Relational Agent," *BMC Psychiatry* 24, no. 1 (2024): 79. https://doi.org/10.21203/rs.3.rs-2488688/v1
Pratap 2018	Full Text	I	Online Databases & Conference Proceedings	Pratap, Abhishek, Brenna N. Renn, Joshua Volponi, et al., "Using Mobile Apps to Assess and Treat Depression in Hispanic and Latino Populations: Fully Remote Randomized Clinical Trial," *Journal of Medical Internet Research* 20, no. 8 (2018): e10130. https://doi.org/10.2196/10130
Rotondi 2024	Full Text	I	Online Databases & Conference Proceedings	Rotondi, Armando J., Bea Herbeck Belnap, Scott Rothenberger, et al., "Predictors of Use and Drop Out from a Web-Based Cognitive Behavioral Therapy Program and Health Community for Depression and Anxiety in Primary Care Patients: Secondary Analysis of a Randomized Controlled Trial," *JMIR Mental Health* 11 (2024): e52197. https://doi.org/10.2196/52197
Santopetro 2024	Full Text	I	Online Databases & Conference Proceedings	Santopetro, Nicholas, Danielle Jones, Andrew Garron, et al., "Examining a Fully Automated Mobile-Based Behavioral Activation Intervention in Depression: Randomized Controlled Trial," *JMIR Mental Health* 11 (2024): e54252. https://doi.org/10.2196/54252
Schure 2019	Full Text	I	Online Databases & Conference Proceedings	Schure, Mark B., Janet C. Lindow, John H. Greist, et al., "Use of a Fully Automated Internet-Based Cognitive Behavior Therapy Intervention in a Community Population of Adults with Depression Symptoms: Randomized Controlled Trial," *Journal of Medical Internet* Research 21, no. 11 (2019): e14754. https://doi.org/10.2196/14754

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Schure 2020	Full Text	I	Online Databases & Conference Proceedings	Schure, Mark, Bernadette McCrory, Kathryn Tuchscherer Franklin, et al., "Twelve-Month Follow-Up to a Fully Automated Internet-Based Cognitive Behavior Therapy Intervention for Rural Adults with Depression Symptoms: Single-Arm Longitudinal Study," *Journal of Medical Internet Research* 22, no. 10 (2020): e21336. https://doi.org/10.2196/21336
Segal 2020	Full Text	I	Online Databases & Conference Proceedings	Segal, Zindel V., Sona Dimidjian, Arne Beck, et al., "Outcomes of Online Mindfulness-Based Cognitive Therapy for Patients with Residual Depressive Symptoms: A Randomized Clinical Trial," *JAMA Psychiatry* 77, no. 6 (2020): 563–573. https://doi.org/10.1001/jamapsychiatry.2019.4693
Shah 2018	Full Text	I	Online Databases & Conference Proceedings	Shah, Avani, Martin Morthland, Forrest Scogin, et al., "Audio and Computer Cognitive Behavioral Therapy for Depressive Symptoms in Older Adults: A Pilot Randomized Controlled Trial," *Behavior Therapy* 49, no. 6 (2018): 904–916. https://doi.org/10.1016/j.beth.2018.06.002
Spencer-Laitt 2024*	Abstract/Poster	I	Online Databases & Conference Proceedings	Spencer-Laitt, Daniella, Audrey Hey, and Todd Farchione. "Effects of a Novel Engagement Intervention During a Randomized Clinical Trial of a Digital Treatment for Anxiety and Depression," Poster presented at ADAA 2024 Annual Conference, Boston, MA, April 11–14, 2024.
Stiles-Shields 2019	Full Text	I	Online Databases & Conference Proceedings	Stiles-Shields, Colleen, Enid Montague, Mary J. Kwasny, et al., "Behavioral and Cognitive Intervention Strategies Delivered via Coached Apps for Depression: Pilot Trial," *Psychological Services* 16, no. 2 (2019): 233. https://doi.org/10.1037/ser0000261
Stuart 2022	Full Text	I	Online Databases & Conference Proceedings	Stuart, Roderick, Heidi Fischer, Arthur S. Leitzke, et al., "The Effectiveness of Internet-Based Cognitive Behavioral Therapy for the Treatment of Depression in a Large Real-World Primary Care Practice: A Randomized Trial," *Permanente Journal* 26, no. 3 (2022): 53. https://doi.org/10.7812/tpp/21.183
Sweet 2021	Full Text	I	Online Databases & Conference Proceedings	Sweet, Alison M., Sarah L. Pearlstein, Martin P. Paulus, et al., "Computer-Delivered Behavioural Activation and Approach-Avoidance Training in Major Depression: Proof of Concept and Initial Outcomes," *British Journal of Clinical Psychology* 60, no. 3 (2021): 357-374. https://doi.org/10.1111/bjc.12287
Thase 2018	Full Text	I	Online Databases & Conference Proceedings	Thase, Michael E., Jesse H. Wright, Tracy D. Eells, et al., "Improving the Efficiency of Psychotherapy for Depression: Computer-Assisted Versus Standard CBT," *American Journal of Psychiatry* 175, no. 3 (2018): 242–250. https://doi.org/10.1176/appi.ajp.2017.17010089
Venkatesan 2020	Full Text	O	Online Databases & Conference Proceedings	Venkatesan, Aarathi, Lily Rahimi, Manpreet Kaur, et al., "Digital Cognitive Behavior Therapy Intervention for Depression and Anxiety: Retrospective Study," *JMIR Mental Health* 7, no. 8 (2020): e21304. https://doi.org/10.2196/21304
Wright 2022	Full Text	I	Online Databases & Conference Proceedings	Wright, Jesse H., Jesse Owen, Tracy D. Eells, et al., "Effect of Computer-Assisted Cognitive Behavior Therapy vs Usual Care on Depression Among Adults in Primary Care: A Randomized Clinical Trial," *JAMA Network Open* 5, no. 2 (2022): e2146716. https://doi.org/10.1001/jamanetworkopen.2021.46716

Study Articles	Article Type	Study Category	Data Source	Full Reference
Xiang 2021*	Full Text	O	Online Databases & Conference Proceedings	Xiang, Xiaoling, Jay Kayser, Yihang Sun, et al., "Internet-Based Psychotherapy Intervention for Depression Among Older Adults Receiving Home Care: Qualitative Study of Participants' Experiences," *JMIR Aging* 4, no. 4 (2021): e27630. https://doi.org/10.2196/27630
Xiang 2024a	Full Text	I	Online Databases & Conference Proceedings	Xiang, Xiaoling, Skyla Turner, Sofia Ruiz-Sierra, et al., "Older Adults' Experience with a Layperson-Supported Digital Mental Health Intervention for Depression: Qualitative Insights on Engagement," *Clinical Gerontologist* (2024): 1–12. https://doi.org/10.1080/07317115.2024.2395890
Xiang 2024b	Full Text	I	Online Databases & Conference Proceedings	Xiang, Xiaoling, Jay Kayser, Skyla Turner, et al., "Layperson-Supported, Web-Delivered Cognitive Behavioral Therapy for Depression in Older Adults: Randomized Controlled Trial," *Journal of Medical Internet Research* 26, no. 1 (2024): e53001. https://doi.org/10.2196/53001
Yu 2018	Full Text	I	Online Databases & Conference Proceedings	Yu, Jessica S., Eva Szigethy, Meredith Wallace, et al., "Implementation of a Guided, Digital Cognitive Behavioral Program for Anxiety in Primary Care: Preliminary Findings of Engagement and Effectiveness," *Telemedicine and E-Health* 24, no. 11 (2018): 870–878. https://doi.org/10.1089/tmj.2017.0280

Notes: I = interventional. O = observational. SLR = systematic literature review. Systematic literature reviews and meta-analyses are not included in the table. Horwitz 2020 assessed both SilverCloud and Headspace; this study is counted in both SilverCloud and Headspace's counts, resulting in 128 unique articles but 129 rows in the table * Denotes articles with data that could not be extracted. † Hall 2024 examines Big Health's Spark Direct solution, not the DaylightRx solution, but the study was identified and included in the SLR.

Appendix B-2 – Company-specific Clinical Citations Excluded from SLR

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Big Health (Daylight Rx)			
Company Data Submission	Darden, Michael, Jenna R. Carl, Jasper AJ Smits, et al., "Cost-Effectiveness of Automated Digital CBT (Daylight) for Generalized Anxiety Disorder: A Markov Simulation Model in the United States," *PLOS Mental Health* 1, no. 3 (2024): e0000116. https://doi.org/10.1371/journal.pmen.0000116	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Espie, Colin A, Jenna R. Carl, Richard Stott, et al., "Digital Medicine Needs to Work," *The Lancet*, Volume 392, Issue 10165, 2694. https://doi.org/10.1016/S0140-6736(18)32519-4	Publication type out of scope	Correspondence
Company Data Submission	Gu, J., Miller, C. B., Henry, A. L., et al., "Efficacy of Digital Cognitive Behavioural Therapy for Symptoms of Generalised Anxiety Disorder: A Study Protocol for a Randomised Controlled Trial," *Trials* 21, no. 1 (2020): 357. https://doi.org/10.1186/s13063-020-4230-6	Publication type out of scope	Study protocol
Company Data Submission	Miller, Christopher B., Jenny Gu, Alasdair L. Henry, et al., "Feasibility and Efficacy of a Digital CBT Intervention for Symptoms of Generalized Anxiety Disorder: A Randomized Multiple-Baseline Study," *Journal of Behavior Therapy and Experimental Psychiatry* 70 (2021): 101609. https://doi.org/10.1016/j.jbtep.2020.101609	Setting out of scope	Study setting is ex-US (UK)
Headspace			
Company Data Submission	Ainsworth, Ben, Sabina Stanescu, Beth Stuart, et al., "A Feasibility Trial of a Digital Mindfulness-Based Intervention to Improve Asthma-Related Quality of Life for Primary Care Patients with Asthma," *Journal of Behavioral Medicine* 45, no. 1 (2022): 133-147. https://doi.org/10.1007/s10865-021-00249-3	Population out of scope	Participants with asthma
Company Data Submission	Ashton, Stephanie M., Anke Sambeth, and Conny WEM Quaedflieg. "A Mindful Approach to Controlling Intrusive Thoughts," *Scientific Reports* 13, no. 1 (2023): 10966. https://doi.org/10.1038/s41598-023-37447-9	Publication type out of scope	Study protocol
Company Data Submission	Avalos, Lyndsay A., Sara Aghaee, Elaine Kurtovich, et al., "A Mobile Health Mindfulness Intervention for Women with Moderate to Moderately Severe Postpartum Depressive Symptoms: Feasibility Study." JMIR Mental Health 7, no. 11 (2020): e17405. https://doi.org/10.2196/17405	Population out of scope	Participants with postpartum depression

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Axelsen, Johanne Lundager, Ulrich Kirk, and Walter Staiano, "On-the-Spot Binaural Beats and Mindfulness Reduces the Effect of Mental Fatigue." *Journal of Cognitive Enhancement* 4, no. 1 (2020): 31-39. https://doi.org/10.1007/s41465-019-00162-3	Population out of scope	Participants experience mental fatigue (defined as a transient state of reduced cognitive performance caused by prolonged periods of demanding cognitive activity)
Company Data Submission	Axelsen, Johanne Lundager, Jacob Stig Jarnot Meline, Walter Staiano, et al., "Mindfulness and Music Interventions in the Workplace: Assessment of Sustained Attention and Working Memory Using a Crowdsourcing Approach." *BMC Psychology* 10, no. 1 (2022): 108. https://doi.org/10.1186/s40359-022-00810-y	Population out of scope	Participants are healthy volunteers (without anxiety and/or depression)
Company Data Submission	Balsam, D., D. T. Bounds, A. M. Rahmani, et al., "Evaluating the Impact of an App-Delivered Mindfulness Meditation Program to Reduce Stress and Anxiety During Pregnancy: Pilot Longitudinal Study," *JMIR Pediatrics and Parenting* 6 (2023): e53933. https://doi.org/10.2196/42712	Population out of scope	HIV positive patients
Company Data Submission	Bennike, I. H., A. Wieghorst, and U. Kirk, "Online-Based Mindfulness Training Reduces Behavioral Markers of Mind Wandering," *Journal of Cognitive Enhancement* 1, no. 2 (2017): 172–181. https://doi.org/10.1007/s41465-017-0020-9	Publication date	Study was published in 2017 (manuscripts were included if published between 2018-2024)
Company Data Submission	Björkstrand, J., D. Schiller, J. Li, et al., "The Effect of Mindfulness Training on Extinction Retention," Scientific Reports 9, no. 1 (2019). https://doi.org/10.1038/s41598-019-56167-7	Setting out of scope	Study setting is ex-US (Sweden)
Company Data Submission	Bostock, S., A. D. Crosswell, A. A. Prather, et al., "Mindfulness on-the-Go: Effects of a Mindfulness Meditation App on Work Stress and Well-Being," *Journal of Occupational Health Psychology* 24, no. 1 (2019): 127–138. https://doi.org/10.1037/ocp0000118	Setting out of scope	Study setting is ex-US (UK)
Company Data Submission	Burgess, A., K. Cavanagh, C. Strauss, et al., "Headspace for Parents: Qualitative Report Investigating the Use of a Mindfulness-Based App for Managing Parents' Stress during COVID-19," *BJ Psych Open* 8, no. 1 (2022): e15. https://doi.org/10.1192/bjo.2021.1145	Population out of scope	COVID-related stress
Company Data Submission	Callahan, C. E., J. Kimber, E. Hu, et al., "The Real-World Impact of App-Based Mindfulness on Headspace Members with Moderate and Severe Perceived Stress: Observational Study," *JMIR mHealth and uHealth* 12 (2024): e52968. https://doi.org/10.2196/52968	Population out of scope	Participants with moderate and severe perceived stress

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Champion, L., M. Economides, and C. Chandler, "The Efficacy of a Brief App-Based Mindfulness Intervention on Psychosocial Outcomes in Healthy Adults: A Pilot Randomised Controlled Trial," *PLoS ONE* 13, no. 12 (2018). https://doi.org/10.1371/journal.pone.0209482	Population out of scope	Participants are healthy adults (without anxiety and/or depression)
Company Data Submission	Conley, Cheyenne S., Christina H. Gonzales, Brittney M. Huguenel, et al., "Benefits of a Technology-Delivered Mindfulness Intervention for Psychological Distress and Positive Wellbeing in Depressed College Students: Post-Intervention and Follow-Up Effects from an RCT," *Mindfulness* 15, no. 7 (2024):1739–1758. https://doi.org/10.1007/s12671-024-02398-3	Population out of scope	Subpopulation (university/college students)
Company Data Submission	de Tommasi, C., E. Richardson, M. Reale, et al., "Evaluation of a Novel Application of a Mindfulness Phone Application for Patients with Brain Tumours: A Feasibility Study," *Journal of NeuroOncology* 149, no. 3 (2020): 489–98. https://doi.org/10.1007/s11060-020-03638-x	Population out of scope	Patients with brain tumors
Company Data Submission	DeSteno, David, David Lim, Florian Duong, et al., "Meditation Inhibits Aggressive Responses to Provocations." *Mindfulness* 9, no. 4 (2018): 1117–1122. https://doi.org/10.1007/s12671-017-0847-2	Population out of scope	Participants facing a real-time provocation known to evoke aggression
Company Data Submission	Devan, H., D. Farmery, L. Peebles, et al., "Evaluation of Self-Management Support Functions in Apps for People with Persistent Pain: Systematic Review," *JMIR mHealth and uHealth 7, no. 2 (2019): e13080.* https://doi.org/10.2196/13080	Population out of scope	Participants suffering from persistent pain
Company Data Submission	Dutcher, J. M., S. W. Cole, A. C. Williams, et al., "Smartphone Mindfulness Meditation Training Reduces Pro-Inflammatory Gene Expression in Stressed Adults: A Randomized Controlled Trial," *Brain, Behavior, and Immunity* 103 (2022): 171-177. https://doi.org/10.1016/j.bbi.2022.02.020	Population out of scope	Participants suffering from persistent pain
Company Data Submission	Economides, M., J. Martman, M. J. Bell, et al., "Improvements in Stress, Affect, and Irritability Following Brief Use of a Mindfulness-Based Smartphone App: A Randomized Controlled Trial," *Mindfulness* 9, no. 5 (2018): 1584–1593. https://doi.org/10.1007/s12671-018-0905-4	Population out of scope	Participants are healthy adults (without anxiety and/or depression)
Company Data Submission	Flett, J. A. M., H. Hayne, B. C. Riordan, et al., "Mobile Mindfulness Meditation: A Randomized Controlled Trial of the Effect of Two Popular Apps on Mental Health," *Mindfulness* 10, no. 4 (2019): 863–876. https://doi.org/10.1007/s12671-018-1050-9	Population out of scope	Subpopulation (university/college students)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Flett, J. A. M., B. D. Fletcher, B. C. Riordan, et al., "The Peril of Self-Reported Adherence in Digital Interventions: A Brief Example," *Internet Interventions* 18 (2019). https://doi.org/10.1016/j.invent.2019.100267	Population out of scope	Subpopulation (university/college students)
Company Data Submission	Flett, J. A. M., T. S. Conner, B. C. Riordan, et al., "App-Based Mindfulness Meditation for Psychological Distress and Adjustment to College in Incoming University Students: A Pragmatic, Randomised, Waitlist-Controlled Trial," *Psychology & Health* 35, no. 9 (2020): 1049–1074. https://doi.org/10.1080/08870446.2019.1711089	Population out of scope	Subpopulation (university/college students)
Company Data Submission	François, J., A. F. Audrain-Pontevia, S. Boudhraâ, et al., "Assessing the Influence of Patient Empowerment Gained Through Mental Health Apps on Patient Trust in the Health Care Provider and Patient Compliance with the Recommended Treatment: Cross-Sectional Study," *Journal of Medical Internet Research* 26 (2024): e48182. https://doi.org/10.2196/48182	Setting out of scope	Study setting is ex-US (Canada)
Company Data Submission	Fried, R., M. DiSalvo, A. Farrell, et al., "Using a Digital Meditation Application to Mitigate Anxiety and Sleep Problems in Children with ADHD," *Journal of Attention Disorders* (2021): 108705472110256. https://doi.org/10.1177/10870547211025616	Population out of scope	Patients are <18 years of age
Company Data Submission	Graziani, Grant, Sarah Kunkle, and Emily Shih, "Resilience in 2021—Descriptive Analysis of Individuals Accessing Virtual Mental Health Services: Retrospective Observational Study," *JMIR Formative* Research 6, no. 3 (2022): e34283. https://doi.org/10.2196/34283	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Graziani, Grant, Brandon S. Aylward, Sarah Kunkle, et al., "Changes in Resilience Following Engagement with a Virtual Mental Health System: Real-World Observational Study," *JMIR Formative Research* 6, no. 7 (2022): e37169. https://doi.org/10.2196/37169	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Graziani, Grant, Brandon S. Aylward, Vicki Fung, et al., "Changes in Healthcare Costs Following Engagement with a Virtual Mental Health System: A Matched Cohort Study of Healthcare Claims Data," *Procedia Computer Science* 206 (2022): 173-182. https://doi.org/10.1016/j.procs.2022.09.096	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Haliwa, Ilana, Cameron G. Ford, Jenna M. Wilson, et al., "A Mixed-Method Assessment of a 10-Day Mobile Mindfulness Intervention," *Frontiers in Psychology* 12 (2021): 722995. https://doi.org/10.3389/fpsyg.2021.722995	Population out of scope	Subpopulation (university/college students)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Howells, A., Ivtzan, I., and F. J. Eiroa-Orosa, "Putting the 'App' in Happiness: A Randomised Controlled Trial of a Smartphone-Based Mindfulness Intervention to Enhance Wellbeing," *Journal of Happiness Studies* 17, no. 1 (2016): 163–85. https://doi.org/10.1007/s10902-014-9589-1	Publication date	Study was published in 2014 (manuscripts were included if published between 2018-2024)
Company Data Submission	Hülsheger, U. R., T. Yang, J. E. Bono, et al., "Stop the Spin: The Role of Mindfulness Practices in Reducing Affect Spin," *Journal of Occupational Health Psychology*. Advance online publication (2022). https://doi.org/10.1037/ocp0000210	Population out of scope	Participants experiencing affect spin (no anxiety and/or depression)
Company Data Submission	Johnson, L. C., J. J. Aiello, A. Jagtiani, et al., "Feasibility, Appropriateness, and Acceptability of a Mobile Mindfulness Meditation Intervention to Improve Sleep Quality among a Racially/Ethnically Diverse Population," *Sleep Health*. Advance online publication (2022). https://doi.org/10.1016/j.sleh.2022.06.004	Population out of scope	Participants suffering from sleep problems
Company Data Submission	Johnson, L. C., L. Bosque, A. Jagtiani, et al., "Attitudes and Beliefs about Sleep Health among a Racially and Ethnically Diverse Sample of Overweight/Obese Adults," *Sleep Health*. Advance online publication (2023). https://doi.org/10.1016/j.sleh.2023.01.003	Population out of scope	Participants suffering from sleep problems
Company Data Submission	Keng, S. L., J. W. E. Chin, M. Mammadova, et al., "Effects of Mobile App-Based Mindfulness Practice on Healthcare Workers: A Randomized Active Controlled Trial," *Mindfulness* 13, no. 11 (2022): 2691–2704. https://doi.org/10.1007/s12671-022-01975-8	Population out of scope	Subpopulation (healthcare workers)
Company Data Submission	Kirk, U., and J. L. Axelsen, "Heart Rate Variability Is Enhanced during Mindfulness Practice: A Randomized Controlled Trial Involving a 10-Day Online Based Mindfulness Intervention," *PLoS ONE* 15 (2020). https://doi.org/10.1371/journal.pone.0243488	Population out of scope	Participants are healthy volunteers (without anxiety and/or depression)
Company Data Submission	Kirk, U., C. Ngnoumen, A. Clausel, et al., "Effects of Three Genres of Focus Music on Heart Rate Variability and Sustained Attention," *Journal of Cognitive Enhancement* (2021). https://doi.org/10.1007/s41465-021-00226-3	Population out of scope	Participants are healthy adults (without anxiety and/or depression)
Company Data Submission	Kirk, Ulrich, Christelle Ngnoumen, Alicia Clausel, et al., "Using Actigraphy and Heart Rate Variability (HRV) to Assess Sleep Quality and Sleep Arousal of Three App-based Interventions: Sleep Music, Sleepcasts, and Guided Mindfulness," *Journal of Cognitive Enhancement* 6, no. 2 (2022): 216-231. https://doi.org/10.1007/s41465-021-00233-4	Population out of scope	Participants suffering from sleep problems

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Kirk, U., W. Staiano, E. Hu, et al., "App-Based Mindfulness for Attenuation of Subjective and Physiological Stress Reactivity in a Population with Elevated Stress: Randomized Controlled Trial," *JMIR mHealth and uHealth* 11 (2023): e47371. https://doi.org/10.2196/47371	Population out of scope	Participants with elevated stress levels
Company Data Submission	Klingbeil, D. A., T. L. Renshaw, J. B. Willenbrink, et al., "Mindfulness-Based Interventions with Youth: A Comprehensive Meta-Analysis of Group-Design Studies," *Journal of School Psychology* 63 (2017): 77-103. https://doi.org/10.1016/j.jsp.2017.03.006	Population out of scope	Patients are <18 years of age
Company Data Submission	Kubo, A., A. Altschuler, E. Kurtovich, et al., "A Pilot Mobile-Based Mindfulness Intervention for Cancer Patients and Their Informal Caregivers," *Mindfulness* 9, no. 6 (2018): 1885–1894. https://doi.org/10.1007/s12671-018-0931-2	Population out of scope	Cancer patients
Company Data Submission	Kubo, A., E. Kurtovich, M. McGinnis, et al., "A Randomized Controlled Trial of mHealth Mindfulness Intervention for Cancer Patients and Informal Cancer Caregivers: A Feasibility Study within an Integrated Health Care Delivery System," *Integrative Cancer Therapies* 18 (2019): 1534735419850634. https://doi.org/10.1177/1534735419850634	Population out of scope	Cancer patients
Company Data Submission	Lau, N., A. O'Daffer, S. Colt, et al., "Android and iPhone Mobile Apps for Psychosocial Wellness and Stress Management: Systematic Search in App Stores and Literature Review," *JMIR mHealth and uHealth* 8, no. 5 (2020): e17798. https://doi.org/10.2196/17798	Intervention out of scope	SLR of apps related to wellness and stress
Company Data Submission	Laurie, J., and A. Blandford, "Making Time for Mindfulness," *International Journal of Medical Informatics* 96 (2016): 38–50. https://doi.org/10.1016/j.ijmedinf.2016.02.010	Publication date	Study was published in 2016 (manuscripts were included if published between 2018-2024)
Company Data Submission	Leech, T., D. Dorstyn, A. Taylor, et al., "Mental Health Apps for Adolescents and Young Adults: A Systematic Review of Randomized Controlled Trials," *Children and Youth Services Review* 127 (2021): 106073. https://doi.org/10.1016/j.childyouth.2021.106073	Publication date	SLR published in 2021 (SLRs were included if published between 2022-2024)
Company Data Submission	Lim, D., P. Condon, and D. de Steno, "Mindfulness and Compassion: An Examination of Mechanism and Scalability," *PLOS ONE* 10, no. 2 (2015): e0118221. https://doi.org/10.1371/journal.pone.0118221	Publication date	Study was published in 2015 (manuscripts were included if published between 2018-2024)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Low, T., R. Conduit, P. Varma, et al., "Treating Subclinical and Clinical Symptoms of Insomnia with a Mindfulness-Based Smartphone Application: A Pilot Study," *Internet Interventions* 21 (2020): 100335. https://doi.org/10.1016/j.invent.2020.100335	Population out of scope	Participants with insomnia
Company Data Submission	Mani, M., D. J. Kavanagh, L. Hides, et al., "Review and Evaluation of Mindfulness-Based iPhone Apps," *JMIR mHealth and uHealth* 3, no. 3 (2015): e82. https://doi.org/10.2196/mhealth.4328	Publication date	Study was published in 2015 (manuscripts were included if published between 2018-2024)
Company Data Submission	Mascaro, J, "A Longitudinal, Randomized and Controlled Study of App-Delivered Mindfulness in the Workplace," *Journal of Wellness* 2, no. 1 (2020): 1–9. https://doi.org/10.18297/jwellness/vol2/iss1/4	Intervention out of scope	Intervention is mindfulness/meditation focused
Company Data Submission	Mascaro, J. S., Singh, V., Wehrmeyer, K., et al., "Randomized, Wait-list–Controlled Pilot Study of App-Delivered Mindfulness for Patients Reporting Chronic Pain," *PAIN Reports* 6, no. 1 (2021): 1-e924. https://doi.org/10.1097/pr9.0000000000000924	Population out of scope	Participants with chronic pain
Company Data Submission	Militello, L., Sobolev, M., Okeke, F., et al., "Digital Prompts to Increase Engagement with the Headspace App and for Stress Regulation Among Parents: Feasibility Study," *JMIR Formative Research* 6, no. 3 (2022): e30606. https://doi.org/10.2196/30606	Study Design out of scope	Study includes <20 participants
Company Data Submission	Mistler, L. A., Ben-Zeev, D., Carpenter-Song, E., et al., "Mobile Mindfulness Intervention on an Acute Psychiatric Unit: Feasibility and Acceptability Study," *JMIR Mental Health* 4, no. 3 (2017). https://doi.org/10.2196/mental.7717	Publication date	Study was published in 2017 (manuscripts were included if published between 2018-2024)
Company Data Submission	Muhiyaddin, R., Abd-Alrazaq, A., Shah, Z., et al., "Evaluation of Meditation Apps Available on Google Play and Apple Store: An App Review," *Studies in Health Technology and Informatics* 289 (2022): 376–379. https://doi.org/10.3233/SHTI210937	Intervention out of scope	Intervention is mindfulness/meditation focused
Company Data Submission	Muhiyaddin, R., Abd-Alrazaq, A., Alajlani, M., et al., "Features of Meditation Apps: A Scoping Review," *Studies in Health Technology and Informatics* 289 (2022): 380–383. https://doi.org/10.3233/SHTI210938	Publication type out of scope	Scoping review
Company Data Submission	Nübold, A., Van Quaquebeke, N., & Hülsheger, U. R, "Be(com)ing Real: A Multi-Source and an Intervention Study on Mindfulness and Authentic Leadership," *Journal of Business and Psychology* (2019). https://doi.org/10.1007/s10869-019-09633-y	Population out of scope	Study regarding authentic leadership (no anxiety and/or depression)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Nübold, A., & Hülsheger, U. R, "Personality States Mediate the Effect of a Mindfulness Intervention on Employees' Work Outcomes: A Randomized Control Trial," *European Journal of Personality* (2021). https://doi.org/10.1002/per.2311	Population out of scope	Not in participants with anxiety and/or depression (focus is on empathic emotion recognition)
Company Data Submission	Quinones, C., and M. D. Griffiths, "Reducing Compulsive Internet Use and Anxiety Symptoms via Two Brief Interventions: A Comparison Between Mindfulness and Gradual Muscle Relaxation," *Journal of Behavioral Addictions* 8, no. 3 (2019): 530–536. https://doi.org/10.1556/2006.8.2019.45	Intervention out of scope	Intervention is mindfulness/meditation focused
Company Data Submission	Radin, R. M., E. S. Epel, A. E. Mason, et al., "Impact of Digital Meditation on Work Stress and Health Outcomes Among Adults with Overweight: A Randomized Controlled Trial," *PLOS ONE* 18, no. 3 (2023): e0280808. https://doi.org/10.1371/journal.pone.0280808	Intervention out of scope	Intervention is mindfulness/meditation focused
Company Data Submission	Radin, R. M., J. Vacarro, E. Fromer, et al., "Digital Meditation to Target Employee Stress: A Randomized Clinical Trial," *JAMA Network Open* 8, no. 1 (2025): e2454435. https://doi.org/10.1001/jamanetworkopen.2024.54435	Population out of scope	Subpopulation (healthcare workers); participants with mild to moderate stress
Company Data Submission	Rich, M., J. Ogden, and L. Morison, "A Randomized Controlled Trial of an App-Delivered Mindfulness Program Among University Employees: Effects on Stress and Work-Related Outcomes," *International Journal of Workplace Health Management*. Advance online publication (2021). https://doi.org/10.1108/IJWHM-04-2021-0072	Population out of scope	Subpopulation (university employees)
Company Data Submission	Rosen, K. D., S. M. Paniagua, W. Kazanis, et al., "Quality of Life Among Women Diagnosed with Breast Cancer: A Randomized Waitlist Controlled Trial of Commercially Available Mobile App-Delivered Mindfulness Training," *Psycho-Oncology* 27, no. 8 (2018): 2023–2030. https://doi.org/10.1002/pon.4764	Population out of scope	Patients with breast cancer
Company Data Submission	Rung, A. L., Oral, E., Berghammer, L., et al., "Feasibility and Acceptability of a Mobile Mindfulness Meditation Intervention Among Women: Intervention Study," *JMIR MHealth and UHealth* 8, no. 6 (2020). https://doi.org/10.2196/15943	Population out of scope	Subpopulation (women recruited after an oil spill in Louisiana)
Company Data Submission	Strauss, C., Dunkeld, C., and Cavanagh, K, "Is Clinician-Supported Use of a Mindfulness Smartphone App a Feasible Treatment for Depression? A Mixed-Methods Feasibility Study," *Internet Interventions* 25 (2021). https://doi.org/10.1016/j.invent.2021.100413	Setting out of scope	Study setting is ex-US (UK)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Swainston, J., and Derakshan, N, "Reduced Anxiety Following Mindfulness and Adaptive Working Memory Training in Women with Breast Cancer," *Mindfulness* 12 (2021): 1928–1939. https://doi.org/10.1007/s12671-021-01622-4	Population out of scope	Patients with breast cancer
Company Data Submission	Taylor, M., Hageman, J. R., and Brown, M, "A Mindfulness Intervention for Residents: Relevance for Pediatricians," *Pediatric Annals* 45, no. 10 (2016): e373–e376. https://doi.org/10.3928/19382359-20160912-01	Population out of scope	Subpopulation (physicians)
Company Data Submission	Taylor, H., Cavanagh, K., Field, A. P., et al., "Health Care Workers' Need for Headspace: Findings from a Multisite Definitive Randomized Controlled Trial of an Unguided Digital Mindfulness-Based Self-Help App to Reduce Healthcare Worker Stress," *JMIR mHealth and uHealth* 10, no. 8 (2022): e31744. https://doi.org/10.2196/31744	Population out of scope	Subpopulation (healthcare workers)
Company Data Submission	Ward, K., Herekar, A., Wang, P., et al., "Feasibility and Acceptability of a Mindfulness-Based Smartphone App Among Pregnant Women with Obesity," *International Journal of Environmental Research and Public Health* 20, no. 7 (2023): 5421. https://doi.org/10.3390/ijerph20075421	Population out of scope	Participants are pregnant
Company Data Submission	Wen, L., Sweeney, T. E., Welton, L., et al., "Encouraging Mindfulness in Medical House Staff via Smartphone App: A Pilot Study," *Academic Psychiatry* 41, no. 5 (2017): 646–650. https://doi.org/10.1007/s40596-017-0768-3	Population out of scope	Participants are pregnant
Company Data Submission	Wylde, C. M., Mahrer, N. E., Meyer, R. M. L., et al., "Mindfulness for Novice Pediatric Nurses: Smartphone Application versus Traditional Intervention," *Journal of Pediatric Nursing* 36 (2017): 205–212. https://doi.org/10.1016/j.pedn.2017.06.008	Population out of scope	Subpopulation (nurses)
Company Data Submission	Yang, E., Schamber, E., Meyer, R. M. L., et al., "Happier Healers: Randomized Controlled Trial of Mobile Mindfulness for Stress Management," *Journal of Alternative and Complementary Medicine* 24, no. 5 (2018): 505–513. https://doi.org/10.1089/acm.2015.0301	Population out of scope	Subpopulation (medical students)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Koa Health			
Company Data Submission	Barbieri, Francesco, Eric Guizzo, Federico Lucchesi, et al., "Towards a Multimodal Time-Based Empathy Prediction System." In 2019 14th IEEE International Conference on Automatic Face & Gesture Recognition (2019): 1-5. https://doi.org/10.1109/fg.2019.8756532	Population out of scope	Not in participants with anxiety and/or depression (focus is on changes in employee's personality states)
Company Data Submission	Bardram, Jakob E., and Aleksandar Matic, "A Decade of Ubiquitous Computing Research in Mental Health," *IEEE Pervasive Computing* 19, no. 1 (2020): 62–72. https://doi.org/10.1109/mprv.2019.2925338	Publication type out of scope	Narrative review
Company Data Submission	Bernstein, Emily E., Jennifer L. Greenberg, Hilary Weingarden, et al., "The Use of Coaching in Smartphone App-Based Cognitive Behavioral Therapy for Body Dysmorphic Disorder," *Internet Interventions* 36 (2024): 100743. https://doi.org/10.1016/j.invent.2024.100743	Population out of scope	Participants with body dysmorphia
Company Data Submission	Besold, Tarek Richard, Pablo Gervas, Evelyn Gius, et al., "Computational Creativity Meets Digital Literary Studies," *Dagstuhl Seminar* (2019).	Population out of scope	Not in participants with anxiety and/or depression (focus is on the connection between computational creativity, natural language processing, and digital literary studies)
Company Data Submission	Buda, Teodora Sandra, Mohammed Khwaja, and Aleksandar Matic, "Outliers in Smartphone Sensor Data Reveal Outliers in Daily Happiness," *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 5, no. 1 (2021): 1–19. https://doi.org/10.1145/3448095	Population out of scope	Not in participants with anxiety and/or depression (focus is on emotional state predictions)
Company Data Submission	Buda, Teodora Sandra, João Guerreiro, Jesus Omana Iglesias, et al., "Foundations for Fairness in Digital Health Apps," *Frontiers in Digital Health* 4 (2022). https://doi.org/10.3389/fdgth.2022.943514	Setting out of scope	Study setting is ex-US (UK)
Company Data Submission	Buda, Teodora Sandra, João Guerreiro, Jesus Omana Iglesias, et al., "Foundations for Fairness in Digital Health Apps," *Frontiers in Digital Health* 4 (2022). https://doi.org/10.3389/fdgth.2022.943514	Setting out of scope	Study setting is ex-US (UK)
Company Data Submission	Camacho-Collados, Jose, Yerai Doval, Eugenio Martínez-Cámara, et al., "Learning Cross-Lingual Word Embeddings from Twitter via Distant Supervision," *Proceedings of the International AAAI Conference on Web and Social Media* 14 (2020): 72–82. https://doi.org/10.1609/icwsm.v14i1.7280	Population out of scope	Not in participants with anxiety and/or depression (focus is on cross lingual embeddings from Twitter)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Catuara-Solarz, Silvina, Bartlomiej Skorulski, Iñaki Estella-Aguerri, et al., "The Efficacy of 'Foundations,' a Digital Mental Health App to Improve Mental Well-Being during COVID-19: Proof-of-Principle Randomized Controlled Trial," *JMIR mHealth and uHealth* 10, no. 7 (2022). https://doi.org/10.2196/30976	Population out of scope	COVID-related anxiety and/or depression
Company Data Submission	Clark, David M., Jennifer Wild, Emma Warnock-Parkes, et al., "More than Doubling the Clinical Benefit of Each Hour of Therapist Time: A Randomised Controlled Trial of Internet Cognitive Therapy for Social Anxiety Disorder," *Psychological Medicine* 53, no. 11 (2022): 5022–32. https://doi.org/10.1017/S0033291722002008	Population out of scope	Participants with social anxiety disorder
Company Data Submission	Confalonieri, Roberto, Tarek Besold, Tillman Weyde, et al., "What Makes a Good Explanation? Cognitive Dimensions of Explaining Intelligent Machines," (2019).	Population out of scope	Not in participants with anxiety and/or depression (focus is on cognitive dimensions of explaining AI)
Company Data Submission	Confalonieri, Roberto, and Oliver Kutz, "Blending under Deconstruction," *Annals of Mathematics and Artificial Intelligence* 88, no. 5–6 (2019): 479–516. https://doi.org/10.1007/s10472-019-09654-6	Population out of scope	Not in participants with anxiety and/or depression (focus is on the cognitive-linguistic theory of conceptual blending)
Company Data Submission	Confalonieri, Roberto, Tillman Weyde, Tarek R. Besold, et al., "Trepan Reloaded: A Knowledge-Driven Approach to Explaining Black-Box Models," In *ECAI* 2020, 2457–64. IOS Press, 2020.	Population out of scope	Not in participants with anxiety and/or depression (focus is on black box models)
Company Data Submission	Constantinides, Marios, Jonas Busk, Aleksandar Matic, et al., "Personalized versus Generic Mood Prediction Models in Bipolar Disorder," In *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers*, October 8, 2018. https://doi.org/10.1145/3267305.3267536	Population out of scope	Participants with bipolar disorder
Company Data Submission	Creswell, Cathy, Claire Hill, and Mara Violato, "Child Anxiety Treatment in the Context of COVID-19 (Co-CAT): Enabling Child and Adolescent Mental Health Services (CAMHS) to Provide Efficient Remote Treatment for Child Anxiety Problems," *The University of Oxford and Oxford University Hospitals NHS Foundation Trust* 2.5 (2022). https://doi.org/10.1186/ISRCTN12890382	Population out of scope	Patients are <18 years of age

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Creswell, Cathy, Lucy Taylor, Sophie Giles, et al., "Digitally Augmented, Parent-Led CBT versus Treatment as Usual for Child Anxiety Problems in Child Mental Health Services in England and Northern Ireland: A Pragmatic, Non-Inferiority, Clinical Effectiveness and Cost-Effectiveness Randomised Controlled Trial," *The Lancet Psychiatry* 11, no. 3 (2024): 193–209. https://doi.org/10.1016/s2215-0366(23)00429-7	Population out of scope	Patients are <18 years of age
Company Data Submission	Ehlers, Anke, Jennifer Wild, Emma Warnock-Parkes, et al., "A Randomised Controlled Trial of Therapist-Assisted Online Psychological Therapies for Posttraumatic Stress Disorder (Stop-PTSD): Trial Protocol," *Trials* 21, no. 1 (2020): 4176. https://doi.org/10.1186/s13063-020-4176-8	Population out of scope	Participants with PTSD
Company Data Submission	Galdon Clavell, Gemma, Mariano Martín Zamorano, Carlos Castillo, et al., "Auditing Algorithms: On Lessons Learned and the Risks of Data Minimization," *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society*, (2020): 265–71. https://doi.org/10.1145/3375627.3375852	Population out of scope	Not in participants with anxiety and/or depression (focus is on the algorithmic audit of a personalized well-being recommendation app)
Company Data Submission	Garriga, Roger, "Machine Learning Paves the Way toward the Prevention of Mental Health Crises," *Nature Medicine* 28, no. 6 (2022): 1135–36. https://doi.org/10.1038/s41591-022-01820-4	Intervention out of scope	Report is on machine learning model
Company Data Submission	Garriga, Roger, Javier Mas, Semhar Abraha, et al., "Machine Learning Model to Predict Mental Health Crises from Electronic Health Records," *Nature Medicine* 28, no. 6 (2022): 1240–48. https://doi.org/10.1038/s41591-022-01811-5	Intervention out of scope	Report is on machine learning model
Company Data Submission	Gnanapragasam, Sam N., Rose Tinch-Taylor, Hannah R. Scott, et al., "Multicentre, England-Wide Randomised Controlled Trial of the 'Foundations' Smartphone Application in Improving Mental Health and Well-Being in a Healthcare Worker Population," *The British Journal of Psychiatry* 222, no. 2 (2022): 58–66. https://doi.org/10.1192/bjp.2022.103	Population out of scope	Subpopulation (healthcare workers)
Company Data Submission	Guerreiro, João, Roger Garriga, Toni Lozano Bagén, et al., "Transatlantic Transferability and Replicability of Machine-Learning Algorithms to Predict Mental Health Crises," *npj Digital Medicine* 7, no. 1 (2024). https://doi.org/10.1038/s41746-024-01203-8	Intervention out of scope	Report is on machine learning model

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Henwood, Amanda, João Guerreiro, Aleksandar Matic, et al., "The Duration of Daily Activities Has No Impact on Measures of Overall Wellbeing," *Scientific Reports* 12, no. 1 (January 11, 2022). https://doi.org/10.1038/s41598-021-04606-9	Intervention out of scope	Intervention includes ecological momentary assessment and day reconstruction method (not CBT-based interventions)
Company Data Submission	Hill, Claire, Chloe Chessell, Ray Percy, et al., "Online Support and Intervention (OSI) for Child Anxiety: A Case Series within Routine Clinical Practice," *Behavioural and Cognitive Psychotherapy* 50, no. 4 (May 4, 2022): 429–45. https://doi.org/10.1017/s1352465822000157	Population out of scope	Patients are <18 years of age
Company Data Submission	Hill, Claire, Tessa Reardon, Lucy Taylor, et al., "Online Support and Intervention for Child Anxiety (OSI): Development and Usability Testing," *JMIR Formative Research* 6, no. 4 (April 13, 2022). https://doi.org/10.2196/29846	Population out of scope	Patients are <18 years of age
Company Data Submission	Grohmann, Johannes, Patrick K. Nicholson, Jesus Omana Iglesias, et al., "Monitorless: Predicting Performance Degradation in Cloud Applications with Machine Learning," In *Proceedings of the 20th International Middleware Conference*, 149–62. December 9, 2019. https://doi.org/10.1145/3361525.3361543	Population out of scope	Not in participants with anxiety and/or depression (focus is on the prediction of performance degradation in cloud apps)
Company Data Submission	Connelly, Kay, Oscar Mayora, Jesus Favela, et al., "The Future of Pervasive Health," *IEEE Pervasive Computing* 16, no. 1 (2017): 16–20. https://doi.org/10.1109/mprv.2017.17	Publication date	Abstract was published in 2017 (conference abstracts/posters were included if published between 2021-2024)
Company Data Submission	Khwaja, Mohammed, Sumer S. Vaid, Sara Zannone, et al., "Modeling Personality vs. Modeling Personalidad," *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 3, no. 3 (2019): 1–24. https://doi.org/10.1145/3351246	Publication date	Abstract was published in 2019 (conference abstracts/posters were included if published between 2021-2024)
Company Data Submission	Khwaja, Mohammed, and Aleksandar Matic, "Personality Is Revealed during Weekends: Towards Data Minimisation for Smartphone Based Personality Classification," In *Lecture Notes in Computer Science*, (2019): 551–60. https://doi.org/10.1007/978-3-030-29387-1_32	Population out of scope	Not in participants with anxiety and/or depression (focus is on data collection in the context of personality classification)
Company Data Submission	Khwaja, Mohammed, Miquel Ferrer, Jesus Omana Iglesias, et al., "Aligning Daily Activities with Personality," In *Proceedings of the 13th ACM Conference on Recommender Systems*. September 10, 2019. https://doi.org/10.1145/3298689.3347020	Publication date	Abstract was published in 2019 (conference abstracts/posters were included if published between 2021-2024)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Khwaja, Mohammed, Svenja Pieritz, A. Aldo Faisal, et al., "Personality and Engagement with Digital Mental Health Interventions," In *Proceedings of the 29th ACM Conference on User Modeling, Adaptation and Personalization*. June 21, 2021. https://doi.org/10.1145/3450613.3456823	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Leigh, Eleanor, and David M. Clark, "Internet-Delivered Therapist-Assisted Cognitive Therapy for Adolescent Social Anxiety Disorder (Osca): A Randomised Controlled Trial Addressing Preliminary Efficacy and Mechanisms of Action," *Journal of Child Psychology and Psychiatry* 64, no. 1 (2022): 145–55. https://doi.org/10.1111/jcpp.13680	Population out of scope	Participants with social anxiety disorder
Company Data Submission	Leigh, Eleanor, and David M. Clark, "Internet-Delivered Therapist-Assisted Cognitive Therapy for Adolescent Social Anxiety Disorder (Osca): A Randomised Controlled Trial Addressing Preliminary Efficacy and Mechanisms of Action," *Journal of Child Psychology and Psychiatry* 64, no. 1 (2022): 145–55. https://doi.org/10.1111/jcpp.13680	Population out of scope	Participants with social anxiety disorder
Company Data Submission	Zaadnoordijk, Lorijn, and Tarek R. Besold, "Artificial Phenomenology for Human-Level Artificial Intelligence," In *AAAI Spring Symposium: Towards Conscious AI Systems*, 2019.	Population out of scope	Not in participants with anxiety and/or depression (focus is on artificial phenomenology for human-level AI)
Company Data Submission	Matic, Aleksandar, and Nuria Oliver, "The Untapped Opportunity of Mobile Network Data for Mental Health," In *Proceedings of the 10th EAI International Conference on Pervasive Computing Technologies for Healthcare*, 2016. https://doi.org/10.4108/eai.16-5-2016.2263783	Publication date	Abstract was published in 2016 (conference abstracts/posters were included if published between 2021-2024)
Company Data Submission	Matic, Aleksandar, Martin Pielot, and Nuria Oliver, "'omg! How Did It Know That?'" *Adjunct Publication of the 25th Conference on User Modeling, Adaptation and Personalization*, July 9, 2017, 41–46. https://doi.org/10.1145/3099023.3101411	Publication date	Abstract was published in 2017 (conference abstracts/posters were included if published between 2021-2024)
Company Data Submission	Tentori, Monica, Lizbeth Escobedo, Carlos Hernandez, et al., "Pervasive Displays in Classrooms of Children with Severe Autism," I*EEE Pervasive Computing* 15, no. 3 (2016): 48–57. https://doi.org/10.1109/mprv.2016.49	Population out of scope	Participants with autism
Company Data Submission	Park, Souneil, Aleksandar Matic, Kamini Garg, et al., "When Simpler Data Does Not Imply Less Information," *ACM Transactions on the Web* 12, no. 2 (2018): 1–23. https://doi.org/10.1145/3143402	Publication date	Abstract was published in 2018 (conference abstracts/posters were included if published between 2021-2024)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Pielot, Martin, Bruno Cardoso, Kleomenis Katevas, et al., "Beyond Interruptibility." Proceedings of the *ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 1, no. 3 (2017): 1–25. https://doi.org/10.1145/3130956	Publication date	Abstract was published in 2017 (conference abstracts/posters were included if published between 2021-2024)
Company Data Submission	Pieritz, Svenja, Mohammed Khwaja, A. Aldo Faisal, et al., "Personalised Recommendations in Mental Health Apps: The Impact of Autonomy and Data Sharin,." *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, May 6, 2021, 1–12. https://doi.org/10.1145/3411764.3445523	Publication type out of scope	Narrative review
Company Data Submission	Serra, Joan, Aleksandar Matic, Josep Lluis Arcos, et al., "A Genetic Algorithm to Discover Flexible Motifs with Support," In *2016 IEEE 16th International Conference on Data Mining Workshops (ICDMW)*, 1153–58. https://doi.org/10.1109/icdmw.2016.0166	Population out of scope	Not in participants with anxiety and/or depression (focus is on motif support)
Company Data Submission	Stott, Richard, Jennifer Wild, Nick Grey, et al., "Internet-Delivered Cognitive Therapy for Social Anxiety Disorder: A Development Pilot Series," *Behavioural and Cognitive Psychotherapy* 41, no. 4 (2013): 383–97. https://doi.org/10.1017/s1352465813000404	Population out of scope	Participants with social anxiety disorder
Company Data Submission	Weingarden, Hilary, Aleksandar Matic, Roger Garriga Calleja, et al., "Optimizing Smartphone-Delivered Cognitive Behavioral Therapy for Body Dysmorphic Disorder Using Passive Smartphone Data: Initial Insights from an Open Pilot Trial," *JMIR mHealth and uHealth* 8, no. 6 (2020): 16350. https://doi.org/10.2196/16350	Population out of scope	Participants with body dysmorphia
Company Data Submission	Wild, Jennifer, Emma Warnock-Parkes, Nick Grey, et al., "Internet-Delivered Cognitive Therapy for PTSD: A Development Pilot Series," *European Journal of Psychotraumatology* 7, no. 1 (2016). https://doi.org/10.3402/ejpt.v7.31019	Population out of scope	Participants with PTSD
Company Data Submission	Wilhelm, Sabine, Hilary Weingarden, Jennifer L. Greenberg, et al., "Development and Pilot Testing of a Cognitive-Behavioral Therapy Digital Service for Body Dysmorphic Disorder., *Behavior Therapy* 51, no. 1 (2020): 15–26. https://doi.org/10.1016/j.beth.2019.03.007	Population out of scope	Participants with body dysmorphia
Company Data Submission	Wilhelm, Sabine, Hilary Weingarden, Jennifer L. Greenberg, et al., "Efficacy of App-Based Cognitive Behavioral Therapy for Body Dysmorphic Disorder with Coach Support: Initial Randomized Controlled Clinical Trial," *Psychotherapy and Psychosomatics* 91, no. 4 (2022): 277–285. https://doi.org/10.1159/000524628	Population out of scope	Participants with body dysmorphia

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Guo, Xiaonan, Tiago Simas, Meng-Chuan Lai, et al., "Enhancement of Indirect Functional Connections with Shortest Path Length in the Adult Autistic Brain," *Human Brain Mapping* 40, no. 18 (2019): 5354–5369. https://doi.org/10.1002/hbm.24777	Population out of scope	Participants with autism
Company Data Submission	Zaadnoordijk, Lorijn, Tarek R. Besold, and Sabine Hunnius, "A Match Does Not Make a Sense: On the Sufficiency of the Comparator Model for Explaining the Sense of Agency," *Neuroscience of Consciousness* 2019, no. 1 (2019). https://doi.org/10.1093/nc/niz006	Population out of scope	Not in participants with anxiety and/or depression (focus is on sense of agency)
Company Data Submission	Zaidi, Abdellatif, and Inaki Estella Aguerri, "Optimal Rate-Exponent Region for a Class of Hypothesis Testing against Conditional Independence Problems," 2019 *IEEE Information Theory Workshop (ITW),* (2019):1–5. https://doi.org/10.1109/itw44776.2019.8989303	Population out of scope	Not in participants with anxiety and/or depression (focus is on distributed hypothesis testing)
Lyra Health			
Company Data Submission	Davidson, S., K.L. Gratz, J. Jun, et al., "Feasibility and Effectiveness of a Blended Care DBT Program," Live research presentation at the 28th Annual Meeting of the International Society for the Improvement and Teaching of Dialectical Behavior Therapy, 2023.	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)
Company Data Submission	Lattie, E., A. Varra, C. Chen, et al., "Examining the Client Experience of Digital Tools in Blended Care Therapy," Poster presentation at the 57th Association of Cognitive and Behavioral Therapies Convention, 2023.	Study Design out of scope	Study includes <20 participants
Company Data Submission	Lungu, A., M. S. Boone, S.-Y. Chen, et al., "Effectiveness of a Cognitive Behavioral Coaching Program Delivered via Video in Real-World Settings," *Telemedicine and e-Health* (2021): 47–54. https://doi.org/10.1089/tmj.2019.0313	Population out of scope	Participants with perceived stress
Company Data Submission	Owusu, J. T., Wang, P., Wickham, R. E., et al., "Live Messaging Blended Care Coaching: Outcomes Among Adults with Moderate Levels of Depression," Live Research Spotlight Presentation at the 44th Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, 2023.	Study Design out of scope	Study includes <20 participants
Company Data Submission	Penev, T., S. Zhao, J. L. Lee, et al., "The Impact of a Workforce Mental Health Program on Employer Medical Plan Spend: An Application of Cost Efficiency Measurement for Mental Health Care," *Population Health Management* (2023): 60–71. https://doi.org/10.1089/pop.2022.0240	Outcome out of scope	Outcomes reported are not in scope of the SLR

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Schneider, R. A., J. R. Grasso, S.-Y. Chen, et al., "Beyond the Lab: Empirically Supported Treatments in the Real World," *Frontiers in Psychology* 11 (2020): 1969. https://doi.org/10.3389/fpsyg.2020.01969	Intervention out of scope	Empirically supported therapies (not specific to CBT-based interventions)
Company Data Submission	Wu, M. S., J. Lau, C. Wilks, et al., "Development, Acceptability, and Feasibility of a Digital Module for Coping with COVID-19 Distress: Pragmatic Retrospective Study," *Telemedicine Reports* 2 (2021): 188–196. https://doi.org/10.1089/tmr.2021.0013	Population out of scope	COVID-related anxiety and/or depression
Company Data Submission	Wu, M., Lau, J., Wilks, C, et al., "Development, Acceptability, and Feasibility of a Digital Module within Blended Care for Coping with COVID-19 Distress," Live presentation at the 56th Association of Cognitive and Behavioral Therapies Convention, 2022.	Population out of scope	COVID-related distress
Meru Health			
Company Data Submission	Allende, Santiago, Valerie L. Forman-Hoffman, and Philippe R. Goldin, "Examining the Temporal Dynamics of Anxiety and Depressive Symptoms During a Therapist-Supported, Smartphone-Based Intervention for Depression: Longitudinal Observational Study," *Journal of Clinical Psychology* 79, no. 1 (2023): 43-54. https://doi.org/10.1002/jclp.23401	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Economides, Marcos, Kristian Ranta, Outi Hilgert, et al, "The Impact of a Remote Digital Health Intervention for Anxiety and Depression on Occupational and Functional Impairment: An Observational, Pre-post Intervention Study," *PsyArXiv* (2019). https://doi.org/10.31234/osf.io/rhfpa	Publication type out of scope	Publication is not pot peer-reviewed (published on OSF)
Company Data Submission	Forman-Hoffman, Valerie L., Joseph C. Kvedar, and Kristian Ranta, "Potential Benefits of Remote Continuous Care for Depression," *International Journal of Digital Health* 1, no. 1 (2021): 15. https://doi.org/10.29337/ijdh.39	Publication type out of scope	Perspective
Company Data Submission	Goldin, Philippe R., Riku Lindholm, Kristian Ranta, et al., “Feasibility of a Therapist-Supported, Mobile Phone–Delivered Online Intervention for Depression: Longitudinal Observational Study,” *JMIR Formative Research* 3, no. 1 (2019): e11509. https://doi.org/10.2196/11509	Setting out of scope	Study setting is ex-US (Finland)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Nelson, Benjamin W., Valerie L. Forman-Hoffman, and Nicholas C. Peiper, "Preliminary Effectiveness of a Therapist-Supported Digital Mental Health Intervention in Reducing Suicidal Ideation," *Archives of Suicide Research* 28, no. 3 (2024): 934–947. https://doi.org/10.1080/13811118.2023.2262540	Population out of scope	Participants with suicidal ideation
Company Data Submission	Raevuori, Anu, Valerie Hofman-Roddman, Philippe Goldin, et al., "Smartphone-Delivered, Therapist-Supported Digital Health Intervention for Physicians with Burnout," *Journal of Medical Practice Management* (2020): 352–358.	Population out of scope	Physicians with burnout
Company Data Submission	Raevuori, Anu, Tero Vahlberg, Tellervo Korhonen, et al., "A Therapist-Guided Smartphone App for Major Depression in Young Adults: A Randomized Clinical Trial," *Journal of Affective Disorders* 286 (2021): 228–238. https://doi.org/10.1016/j.jad.2021.02.007	Population out of scope	Subpopulation (university/college students)
Modern Health			
Company Data Submission	Brody, L., Molly Nowels, M. McDarby, et al., "Predictors of Engagement in Stepped mHealth Mental Health Care in Patients with Elevated Psychological Distress," Presentation at the Association for Behavioral and Cognitive Therapies 57th Annual Convention, 2023.	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Castro Sweet, C., S. J. Sagui-Henson, B. J. Smith, et al., "Understanding Physical Health Complexities of Mental Health App Users: A Prospective, Observational Study," Presented at the 11th Scientific Meeting of the International Society for Research on Internet Interventions, 2022.	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Castro Sweet, C. M., E. Wang, M. Prescott, et al., "Impact of Online Group Psychoeducation and Support Sessions on Receptivity Towards Digital Mental Health Care During the COVID-19 Pandemic," *Annals of Behavioral Medicine*, Supp_1 (2022): S140. https://doi.org/10.1093/abm/kaac014	Population out of scope	COVID-related anxiety and/or depression
Company Data Submission	Castro Sweet, C., B. Smith, S. Sagui-Henson, et al., "Burnout Risk and Improvement Among Employees Engaged in Digital Mental Health Services," Presentation at the American Psychological Association 2023 Convention.	Outcome out of scope	Outcomes reported are not in scope of the SLR

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Castro Sweet, C., S. J. Sagui-Henson, J. Corcoran, et al., "Implementation Challenges in the Translation of Science from Research to Practice in Mental Health," Presentation at the 44th Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, 2023.	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Kozlov, E., M. McDarby, M. Prescott, et al., "Assessing the Care Modality Preferences and Predictors for Digital Mental Health Treatment Seekers in a Technology-Enabled Stepped Care Delivery System: Cross-Sectional Study," *JMIR Formative Research* 5, no. 9 (2021). https://doi.org/10.2196/30162	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Kozlov, E., M. McDarby, M. Prescott, et al., "Assessing the Care Modality Preferences and Predictors for Digital Mental Health Treatment Seekers in a Technology-Enabled Stepped Care Delivery System: Cross-Sectional Study," Presentation at the American Psychological Association Technology, Mind, & Society 2021 Conference. https://bit.ly/3BdkwD0	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Magid, K., S. J. Sagui-Henson, C. Castro Sweet, et al., "The Impact of Digital Mental Health Services on Loneliness and Mental Health: Results from a Prospective, Observational Study," *International Journal of Behavioral Medicine, Special Issue: Social Isolation and Loneliness in Acute and Chronic Illness*, (2023). https://doi.org/10.1007/s12529-023-10204-y	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)
Company Data Submission	Magid, K., S. J. Sagui-Henson, C. Castro Sweet, et al., "Loneliness, Mental Health, and Well-Being: Exploring the Role of Digital Mental Health," Presentation at the 44th Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, 2023.	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)
Company Data Submission	Maistrello, G., W. D. Phillips, D. S. Lee, et al., "Utilization and Engagement with an Employer-Provided Digital Mental Health Platform: An International Perspective," *Digital Health* 10 (2024): 20552076241277180. https://doi.org/10.1177/20552076241277180	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)
Company Data Submission	Maistrello, G., W. D. Phillips, D. S. Lee, et al., "Utilization and Engagement with an Employer-Provided Digital Mental Health Platform: An International Perspective," Presentation at the International Society of Research on Internet Interventions 12th Annual Scientific Meeting, 2024.	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Mitchell, A., Sagui-Henson, S. J., Castro Sweet, et al., "Changes in Indicators of Positive Psychological Health Among Users of a Digital Mental Health Service," Presentation at the 44th Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, 2023.	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Prescott, M., Agen, M., and Altman, M, "Real World Engagement and Effectiveness of a Stepped Care Digital Mental Health Benefit During the COVID-19 Pandemic," Presentation at the 2021 American Public Health Association Annual Meeting & Expo. https://apha.confex.com/apha/2021/meetingapp.cgi/Paper/502978	Population out of scope	COVID-related anxiety and/or depression
Company Data Submission	Sagui-Henson, S. J., Welcome Chamberlain, C. E., Smith, B. J., et al., "Understanding Components of Therapeutic Alliance and Well-Being from Use of a Global Digital Mental Health Benefit During the COVID-19 Pandemic: Longitudinal Observational Study," *Journal of Technology in Behavioral Science* (2022). https://doi.org/10.1007/s41347-022-00263-5	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Sagui-Henson, S. J., Prescott, M. R., Corcoran, J. B., et al., "Effectiveness of Evidence-Based Coaching Delivered Through an Employer-Sponsored Mental Health Benefits Platform," *Telemedicine and e-Health* 28, no. 4 (2022): 486-494. https://doi.org/10.1089/tmj.2020.0555	Population out of scope	COVID-related anxiety and/or depression
Company Data Submission	Sagui-Henson, S. J., Corcoran, J. B., Pillai, S., et al., "Clinical Effectiveness of Evidence-Based Coaching Delivered Through an Employer-Sponsored Mental Health Benefits Platform [Abstract]," *Annals of Behavioral Medicine* 55, Supplement 1 (2021): S1–S618. https://doi.org/10.1093/abm/kaab020	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Sagui-Henson, S. J., Welcome Chamberlain, C. E., Castro Sweet, C., et al., "Psychosocial Profiles and Social Identities of Users of a Digital Mental Health Platform," Presented at the Society for Digital Mental Health Annual Meeting, 2022. https://osf.io/xp4wc/	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Sagui-Henson, S., Prescott, M., Welcome Chamberlain, C. E., et al., "Therapeutic Alliance and Well-Being from Use of a Global Digital Mental Health Benefit During the COVID-19 Pandemic," *Psychosomatic Medicine* 84, no. 5 (2022): A1-A153. https://doi.org/10.1097/psy.0000000000001095	Outcome out of scope	Outcomes reported are not in scope of the SLR

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Sagui-Henson, S., Welcome Chamberlain, C., Jackson, J., et al., "Designing and Evaluating Employer-Sponsored Digital Mental Health Services to Promote Global Accessibility and Health Equity," Presented at the Society for Digital Mental Health Annual Meeting, 2023.	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Sagui-Henson, S. J., Welcome Chamberlain, C. E., DeVito, S., et al., "Global Engagement and Outcomes from an Employer-Sponsored Digital Mental Health Platform: A Retrospective Study," Presented at the Society for Digital Mental Health Annual Meeting, 2024.	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)
Company Data Submission	Sweet, C. M. C., Li, E. J., Sagui-Henson, S., et al., "Impact of Online Group Psychoeducation and Support Sessions on Receptivity Towards Digital Mental Health Care During the COVID-19 Pandemic: A Pilot Study," *Journal of Technology in Behavioral Science* (2022). https://doi.org/10.1007/s41347-022-00281-3	Population out of scope	COVID-related anxiety and/or depression
Company Data Submission	Welcome Chamberlain, C. E., Lindsay, S., Smith, B. J., et al., "Longitudinal Changes in Physical Activity Engagement and Mental Health Outcomes in a Sample of Digital Mental Health Platform Users," Presented at the Southwest Chapter of the American College of Sports Medicine Annual Meeting, 2022. https://digitalcommons.wku.edu/ijesab/vol14/iss2/91	Outcome out of scope	Outcomes reported are not in scope of the SLR
Otsuka Precision Health (Rejoyn)			
Company Data Submission	Han, Xue, Lisa Abramovitz, Minyi Lu, et al., "Prevalence of Major Depressive Disorder and Access to Psychotherapy Services Among Major Depressive Disorder Patients in the United States," Poster Presented at ASCP Annual Meeting, Miami Beach, FL, May 30-June 2, 2023.	Intervention out of scope	Report only includes prevalence of MDD and does not include an intervention
Company Data Submission	Hoch, Megan M., Gaelle E. Doucet, Dominik A. Moser, et al., "Initial Evidence for Brain Plasticity Following a Digital Therapeutic Intervention for Depression," *Chronic Stress* 3 (2019): 2470547019877880.	Study Design out of scope	Study includes <20 participants
Company Data Submission	Iacoviello, Brian M., Gang Wu, Evan Alvarez, et al., "Cognitive-Emotional Training as an Intervention for Major Depressive Disorder," *Depression and Anxiety* 31, no. 8 (2014): 699–706.	Publication date	Study was published in 2014 (manuscripts were included if published between 2018-2024)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Lu, Minyi, Barinder Singh, Pankaj Rai, et al., "Relative Efficacy and Safety of Adjunctive CT-152 in Patients with Major Depressive Disorder (MDD): Systematic Review and Network Meta-Analysis," Poster presented at the 37th Annual Psych Congress, Boston, MA, October 29–November 2, 2024.	Publication type out of scope	Abstract/poster for an SLR
Company Data Submission	Lu, Minyi, Barinder Singh, Pankaj Rai, et al., "Comparative Efficacy and Safety of Adjunctive CT-152 in Patients with Major Depressive Disorder: A Network Meta-Regression," Poster presented at the 37th Annual Psych Congress, Boston, MA, October 29–November 2, 2024.	Publication type out of scope	Abstract/poster for an SLR
Company Data Submission	Rothman, Brian, Mary Slomkowski, Austin Speier, et al., "Evaluating the Efficacy of a Digital Therapeutic (CT-152) as an Adjunct to Antidepressant Treatment in Adults With Major Depressive Disorder: Protocol for the MIRAI Remote Study," *JMIR Research Protocols* 13 (2024): e56960. https://doi.org/10.2196/56960	Publication type out of scope	Study protocol
Company Data Submission	Vaishnavi, Sandeep, Alex Leow, Veronica Nguyen, et al., "Changes in Neuroplasticity Related to Nonpharmacological Interventions for Major Depressive Disorder: A Systematic Literature Review," Poster presented at the 2024 ASCP Annual Meeting, Miami Beach, FL, May 28–31, 2024.	Publication type out of scope	Abstract/poster for an SLR
Spring Health			
Company Data Submission	Chekroud, Adam M., and John H. Krystal, "Personalised Pharmacotherapy: An Interim Solution for Antidepressant Treatment?" *BMJ: British Medical Journal (Online)* 350 (2015). https://doi.org/10.1136/bmj.h2502	Publication date	Study was published in 2015 (manuscripts were included if published between 2018-2024)
Company Data Submission	Chekroud, Adam Mourad, Ryan Joseph Zotti, Zarrar Shehzad, et al., "Cross-Trial Prediction of Treatment Outcome in Depression: A Machine Learning Approach," *The Lancet Psychiatry* 3, no. 3 (2016): 243–250. https://doi.org/10.1016/S22150366(15)00471-X	Publication date	Study was published in 2016 (manuscripts were included if published between 2018-2024)
Company Data Submission	Chekroud, Adam M., Ralitza Gueorguieva, Harlan M. Krumholz, et al., "Reevaluating the Efficacy and Predictability of Antidepressant Treatments: A Symptom Clustering Approach," *JAMA Psychiatry* 74, no. 4 (2017): 370–378. https://doi.org/10.1001/jamapsychiatry.2017.0025	Publication date	Study was published in 2017 (manuscripts were included if published between 2018-2024)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Chekroud, Adam M, "Bigger Data, Harder Questions—Opportunities Throughout Mental Health Care," *JAMA Psychiatry* 74, no. 12 (2017): 1183–84. https://doi.org/10.1001/jamapsychiatry.2017.3333	Publication date	Study was published in 2017 (manuscripts were included if published between 2018-2024)
Company Data Submission	Chekroud, Adam M., David Foster, Amanda B. Zheutlin, et al., "Predicting Barriers to Treatment for Depression in a US National Sample: A Cross-Sectional, Proof-of-Concept Study," *Psychiatric Services* 69, no. 8 (2018): 927–34. https://doi.org/10.1176/appi.ps.201800094	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Chekroud, Adam M., Masha Hawrilenko, Hyejung Loho, et al., "Illusory Generalizability of Clinical Prediction Models," *Science* 383, no. 6679 (2024): 164–67. https://doi.org/10.1126/science.adg8538	Population out of scope	Participants with schizophrenia
Company Data Submission	Hawrilenko, M., Smolka, C., Ward, E., et al., "Return-on-Investment of Enhanced Behavioral Health Services." *JAMA Network Open* (2025). https://doi.org/10.1001/jamanetworkopen.2024.57834	Population out of scope	Mixed populations (included patients with SUD and other diagnoses)
Company Data Submission	Ward, Emily J., Maren S. Fragala, Charles E. Birse, et al, "Assessing the Impact of a Comprehensive Mental Health Program on Frontline Health Service Workers," *PLOS ONE* 18, no. 11 (2023): e0294414. https://doi.org/10.1371/journal.pone.0294414	Population out of scope	Subpopulation (healthcare workers)
Talkspace			
Company Data Submission	Carlo, Andrew D., Reza Hosseini Ghomi, Brenna N. Renn, et al., "By the Numbers: Ratings and Utilization of Behavioral Health Mobile Applications," *NPJ Digital Medicine* 2, no. 1 (2019): 54. https://doi.org/10.1038/s41746-019-0129-6	Publication type out of scope	Study protocol
Company Data Submission	Hollan, Jade M., Will Bowling, Robert J. Reese, et al., "Two-Way Messaging for Rural Users: A Cohort Comparison Study," *Journal of Rural Mental Health* 45, no. 2 (2021): 63. https://doi.org/10.1037/rmh0000175	Population out of scope	Mixed populations (included participants had a range of mental health concerns, including anxiety, depression, stress, relationship difficulties, bipolar disorder, and PTSD)
Company Data Submission	Hull, Thomas D., and Kush Mahan, "A Study of Asynchronous Mobile-Enabled SMS Text Psychotherapy," *Telemedicine and e-Health* 23, no. 3 (2017): 240–47. https://doi.org/10.1089/tmj.2016.0114	Publication date	Study was published in 2017 (manuscripts were included if published between 2018-2024)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Hull, Thomas D., Jacob Levine, Niels Bantilan, et al., “Analyzing Digital Evidence from a Telemental Health Platform to Assess Complex Psychological Responses to the COVID-19 Pandemic: Content Analysis of Text Messages,” *JMIR Formative Research* 5, no. 2 (2021): e26190. https://doi.org/10.2196/26190	Population out of scope	COVID-related anxiety and/or depression
Company Data Submission	Imel, Zac E., Michael J. Tanana, Christina S. Soma, et al., “Mental Health Counseling from Conversational Content with Transformer-Based Machine Learning,” *JAMA Network Open* 7, no. 1 (2024): e2352590. https://doi.org/10.1001/jamanetworkopen.2023.52590	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)
Company Data Submission	Klomek, Anat Brunstein, Anaelle Benistri, Yonit Doron, et al., "The Moderating Role of Working Alliance in the Association Between Depression and Suicide Ideation in Messaging Therapy," *Telemedicine and e-Health* 28, no. 10 (2022): 1479-1488. https://doi.org/10.1089/tmj.2021.0272	Population out of scope	Participants with suicidal ideation
Company Data Submission	Lee, Fei-Tzin, Derrick Hull, Jacob Levine, et al., "Identifying Therapist Conversational Actions Across Diverse Psychotherapeutic Approaches," In *Proceedings of the Sixth Workshop on Computational Linguistics and Clinical Psychology*, 12-23. 2019. https://doi.org/10.18653/v1/W19-3002	Publication date	Abstract was published in 2019 (conference abstracts/posters were included if published between 2021-2024)
Company Data Submission	Malgaroli, Matteo, Thomas Derrick Hull, Shannon Wiltsey Stirman, et al., "Message Delivery for the Treatment of Posttraumatic Stress Disorder: Longitudinal Observational Study of Symptom Trajectories," *Journal of Medical Internet Research* 22, no. 4 (2020): e15587. https://doi.org/10.2196/15587	Population out of scope	Participants with PTSD
Company Data Submission	Malgaroli, Matteo, Thomas Derrick Hull, and Katharina Schultebraucks, "Digital Health and Artificial Intelligence for PTSD: Improving Treatment Delivery Through Personalization," *Psychiatric Annals* 51, no. 1 (2021): 21-26. https://doi.org/10.3928/00485713-20201203-01	Population out of scope	Participants with PTSD
Company Data Submission	Malgaroli, Matteo, Emily Tseng, Thomas D. Hull, et al., "Association of Health Care Work with Anxiety and Depression During the COVID-19 Pandemic: Structural Topic Modeling Study," *JMIR AI* 2, no. 1 (2023): e47223. https://doi.org/10.2196/47223	Population out of scope	Subpopulation (healthcare workers)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Malgaroli, Matteo, Thomas D. Hull, James M. Zech, et al., "Natural Language Processing for Mental Health Interventions: A Systematic Review and Research Framework," *Translational Psychiatry* 13, no. 1 (2023): 309. https://doi.org/10.1038/s41398-023-02592-2	Population out of scope	Mixed populations (included patients with serious mental illness, PTSD, and suicide risk)
Company Data Submission	Malgaroli, Matteo, Thomas D. Hull, Adam Calderon, et al., "Linguistic Markers of Anxiety and Depression in Somatic Symptom and Related Disorders: Observational Study of a Digital Intervention," *Journal of Affective Disorders* 352 (2024): 133-137. https://doi.org/10.1016/j.jad.2024.02.012	Population out of scope	Participants with somatic and pain disorders
Company Data Submission	Nguyen, Vivian, Sang Min Jung, Lillian Lee, et al., "Taking a Turn for the Better: Conversation Redirection Throughout the Course of Mental-Health Therapy," *Findings of the Association for Computational Linguistics: EMNLP* (2024): 9507–9521. https://doi.org/10.18653/v1/2024.findings-emnlp.555	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Nook, Erik C., Thomas D. Hull, Matthew K. Nock, et al., "Linguistic Measures of Psychological Distance Track Symptom Levels and Treatment Outcomes in a Large Set of Psychotherapy Transcripts," Proceedings of the National Academy of Sciences 119, no. 13 (2022): e2114737119. https://doi.org/10.1073/pnas.2114737119	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)
Company Data Submission	Ren, Xinyang, Hannah A. Burkhardt, Patricia A. Areán, et al., "Deep Representations of First-Person Pronouns for Prediction of Depression Symptom Severity," In *AMIA Annual Symposium Proceedings*, vol. 2023, p. 1226. American Medical Informatics Association, 2023.	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Stirman, Shannon Wiltsey, Jiyoung Song, Thomas D. Hull, et al., "Open Trial of an Adaptation of Cognitive Processing Therapy for Message-Based Delivery," *Technology, Mind, and Behavior* 2, no. 1 (2021). https://doi.org/10.1037/tmb0000016	Population out of scope	Participants with PTSD
Company Data Submission	Zech, James M., Robert Steele, Victoria K. Foley, et al., "Automatic Rating of Therapist Facilitative Interpersonal Skills in Text: A Natural Language Processing Application," *Frontiers in Digital Health* 4 (2022): 917918. https://doi.org/10.3389/fdgth.2022.917918	Population out of scope	Therapists are target population
Company Data Submission	Zech, James M., Morgan Johnson, Michael D. Pullmann, et al., "An Integrative Engagement Model of Digital Psychotherapy: Exploratory Focus Group Findings," *JMIR Formative Research* 7 (2023): e41428. https://doi.org/10.2196/41428	Outcome out of scope	Outcomes reported are not in scope of the SLR

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Zech, James, Victoria Kaitlin Foley, Thomas D. Hull, et al., "Assessing the Quality of Digital Patient-Therapist Communication: The Development and Validation of a Text-Based Facilitative Interpersonal Skills Task," *Psychotherapy Research* 33, no. 6 (2023): 743–756. https://doi.org/10.1080/10503307.2022.2156305	Outcome out of scope	Outcomes reported are not in scope of the SLR
Teladoc Health			
Company Data Submission	Abhulimen, Sese, and Abigail Hirsch, "Quantifying the Economic Impact of a Digital Self-Care Behavioral Health Platform on Missouri Medicaid Expenditures," *Journal of Medical Economics* 21, no. 11 (2018): 1084-1090. https://doi.org/10.1080/13696998.2018.1510834	Outcome out of scope	Outcomes reported are not in scope of the SLR
Company Data Submission	Ahmedani, Brian K., Terri Belville-Robertson, Abigail Hirsch, et al., "An Online Mental Health and Wellness Intervention Supplementing Standard Care of Depression and Anxiety," *Archives of Psychiatric Nursing* 30, no. 6 (2016): 666-670. https://doi.org/10.1016/j.apnu.2016.03.003	Publication date	Study was published in 2016 (manuscripts were included if published between 2018-2024)
Company Data Submission	Chiu, Christina, Elina Dzubur, Yichen Wang, et al., "Micropersonalization in Digital Mental Health: A Vehicle for Improving Member Outcomes," Paper presented at the 11th Scientific Meeting of the International Society for Research on Internet Interventions, September 2022.	Population out of scope	Includes participants with subclinical symptoms (without stratifying results)
Company Data Submission	Dzubur, E., J. Yu, R. James, et al., "The Effect of a Digital Health Program on Mental Health Among Participants with Severe Depression and Anxiety," APHA 2021.	Population out of scope	Participants with severe anxiety or depression only
Company Data Submission	Dzubur, E., S. Dama, R. James, et al., "Poster Session D: Additive Effects of Multiple Health Behavior Interventions on Engagement: A 24-Month Large-Scale Within-Subjects Study," *Annals of Behavioral Medicine* 57, no. Supplement_1 (2023). https://doi.org/10.1093/abm/kaad011	Population out of scope	Participants with other chronic conditions
Company Data Submission	Dzubur, E., R. James, D. Cooper, et al., "Long-Term Benefits of Digital Mental Health Program Use During Months of Poor Chronic Disease Management," *Annals of Behavioral Medicine* 58, no. Supplement_1 (2024). https://doi.org/10.1093/abm/kaae014	Population out of scope	Participants with other chronic conditions
Company Data Submission	Hirsch, A., Luellen, J., Holder, J. M., et al., “Managing Depressive Symptoms in the Workplace Using a Web-Based Self-Care Tool: A Pilot Randomized Controlled Trial,” *JMIR Research Protocols* 6, no. 4 (2017). https://doi.org/10.2196/resprot.7203	Publication date	Study was published in 2017 (manuscripts were included if published between 2018-2024)

Source	Full Reference	Reason for Exclusion	Details on Reason for Exclusion
Company Data Submission	Hirsch, A., Albright, J., and Link, A, “Digital Tools for Chronic Pain Management: An Innovative Approach to Building Awareness of Non-Opioid Based Pain Management Techniques,” ISPOR: Baltimore, MD; 2018.	Population out of scope	Participants suffering from chronic pain
Company Data Submission	Link, A., and A. Hirsch, "Cost Impact of the Statewide Introduction of a Digital Behavioral Health Tool: Results of an Evaluation of myStrength in the State of Missouri," ISPOR, Baltimore, MD, 2018.	Publication date	Abstract was published in 2018 (conference abstracts/posters were included if published between 2021-2024)
Company Data Submission	Link, A., A. Lukowski, and A. Hirsch, "The Addition of Asynchronous Chat-Based Coaching to a Digital Health Tool Promotes Support and Personalization," Connected Health Conference, Boston, MA, 2018.	Publication date	Abstract was published in 2018 (conference abstracts/posters were included if published between 2021-2024)
Company Data Submission	Schladweiler, K., Hirsch, A., Jones, E., et al., "Real-World Outcomes Associated with a Digital Self-Care Behavioral Health Platform," *Annals of Clinical Research and Trials* 1, no. 2 (2017): 1-5.	Publication date	Study was published in 2017 (manuscripts were included if published between 2018-2024)

Notes: AI = artificial intelligence. CBT = cognitive behavioral therapy. HIV = human immunodeficiency virus. MDD = major depressive disorder. PTSD = post-traumatic stress disorder. SLR = systematic literature review. SUD = substance use disorder. UK = United Kingdom. US = United States.

Appendix B-3 – 18 Company-specific Citations with Healthcare Resource Utilization Claims

Source	Full Reference
DaylightRx	
Company data submission	Darden, Michael, Jenna R. Carl, Jasper A.J. Smits, et al., "Cost-Effectiveness of Automated Digital CBT (Daylight) for Generalized Anxiety Disorder: A Markov Simulation Model in the United States," *PLOS Mental Health* 1, no. 3 (2024): e0000116. https://doi.org/10.1371/journal.pmen.0000116
Headspace	
Company data submission	Accorded, "Headspace Care Cost Impact Report," 2022. https://5327495.fs1.hubspotusercontent-na1.net/hubfs/5327495/Headspace-Care-Cost-Impact-Analysis.pdf
Lyra	
Company data submission	Aon, "Lyra Health Cost Efficiency Analysis: The Impact of Lyra EAP Services on Employer Medical Plan Spend in 2018 and 2019," September 2021.
Company data submission	Aon, "Lyra Health Claims Behavioral Cost Impact of Behavioral Health Services 2021 Cost Efficiency Measurement," July 2024. https://cdn.intelligencebank.com/us/share/d23K/AE0L1/OBWJ3/original/Aon-Report-Claims-Cost-Impact-of-Behavioral-HealthServices?mkt_tok=MzU5LUdRUi01MDIAAAGZAKWAqMaNCKGh-R4akFSqaiu8E-qygEgwDGxeNq8A7E4Z_tVfPg0il1oAen4Kt98yxTTbEuGc6hfEXSQQV-GAS6u9bZZWfETQ-96BWl74BqK3eg
Company data submission	Aon, "Lyra Health Claims Cost Impact of Behavioral Health Services 2018–2021 Cost Efficiency Measurement," May 2024. https://cdn.intelligencebank.com/us/share/d23K/AE0L1/RYpOW/original/MDC-6160-Aon-Report?mkt_tok=MzU5LUdRUi01MDIAAAGZAKR2QfdRT7SNhvAV80vFkhQs_u1icJ8G3LPD_McNxLkUnAFfBvgmS26KWLvjuXj4S1WkGRdRTUenvjmhdW3oMovyuqoHYkjx4HzsGRMgfmaUA
Meru Health	
Company data submission	Meru Health, "Meru Health Works with Stanford and Harvard to Provide Significant Clinical Results and Cost Savings," June 15, 2020. https://get.meruhealth.com/wp-content/uploads/2022/10/MeruHealthCostSavingsWhitepaper.pdf
Modern Health	
Company data submission	Prescott, Maximo R., Sara J. Sagui-Henson, Camille E. Welcome Chamberlain, et al., "Real World Effectiveness of Digital Mental Health Services During the COVID-19 Pandemic," *PloS One* 17, no. 8 (2022): e0272162. https://doi.org/10.1371/journal.pone.0272162
Spring Health	
Company data submission	Hawrilenko, Matt, Casey Smolka, Emily Ward, et al., "Return on Investment of Enhanced Behavioral Health Services," *JAMA Network Open* 8, no. 2 (2025): e2457834. https://doi.org/10.1001/jamanetworkopen.2024.57834
Company data submission	Santa Barbara Actuaries, "Analysis of Spring Health's Impact on Health Plan Claims Costs," June 2022. https://lp.springhealth.com/hubfs/SBA-Spring%20White%20Paper%20Claims%20Costs%20FINAL%20JUN%2010%202022%20(3).pdf
Company data submission	Validation Institute, "2023 Validation Report Review for: Spring Health," 2023. https://8056012.fs1.hubspotusercontent-na1.net/hubfs/8056012/Spring_Health_Savings_Final_2023.pdf

Source	Full Reference
Company data submission	Validation Institute, “2024 Validation Institute Review for: Spring Health,” 2024.
Company data submission	Bondar, Julia, Cecina Babich Morrow, Ralitza Gueorguieva, et al., "Clinical and Financial Outcomes Associated with a Workplace Mental Health Program Before and During the COVID-19 Pandemic," *JAMA Network Open* 5, no. 6 (2022): e2216349. https://doi.org/10.1001/jamanetworkopen.2022.16349
Talkspace	
Company data submission	Validation Institute, “2024 Validation Report Review for: Talkspace,” 2024. https://b2b.talkspace.com/hubfs/Content/Reports/Talkspace%20ROI%20Calculator%20-%20Certified%20by%20the%20Validation%20Institute.pdf?hsCtaTracking=dd4dbee5-d71d-4ae4-92e6-20a2ee67a3a3%7C2a5d1e07-baf0-4c11-8ba8-7e688dff9e98
Teladoc	
Company data submission	Abhulimen, Sese, and Abigail Hirsch, "Quantifying the Economic Impact of a Digital Self-Care Behavioral Health Platform on Missouri Medicaid Expenditures," *Journal of Medical Economics* 21, no. 11 (2018): 1084–1090. https://doi.org/10.1080/13696998.2018.1510834

Appendix C – Risk of Bias Ratings for SLR Studies

Appendix C-1: Risk of Bias Ratings using the Cochrane Collaboration Risk of Bias in Randomized Trials Version 2 (ROB2)

Study Articles	Overall rating	Random sequence generation	Deviation from intended intervention bias	Missing outcome data	Outcomes measurement bias	Selective reporting
Big Health						
Carl 2020; Wong 2023*	Low	Low	Low	Low	Low	Low
Hall 2024*	N/A	N/A	N/A	N/A	N/A	N/A
FDA, K233872, (Daylight)	N/A	N/A	N/A	N/A	N/A	N/A
Headspace						
Abbott 2023	Some	Low	Low	Some	Low	Low
Headspace; Amwell (SilverCloud)						
Horwitz 2024	Low	Low	Low	Low	Low	Low
Meru Health						
Forman-Hoffman 2024a	Low	Low	Low	Low	Low	Low
Optum (AbleTo)						
Moberg 2019	Some	Low	Low	Some	Low	Low
Renn 2022*	N/A	N/A	N/A	N/A	N/A	N/A
Renn 2024	Low	Low	Low	Low	Low	Low
Rejoyn						
Iacoviello 2018	Low	Low	Low	Low	Low	Low
Rothman 2024, Cochran 2024a/b/c, FDA, K231209, (Rejoyn)	Low	Low	Low	Low	Low	Low
Talkspace						
Areán 2024; Griffith Fillipo 2022	Some	Low	Low	Some	Low	Low
Song 2023	Low	Low	Low	Low	Low	Low
Other						
Bisconti 2024	High	High	High	High	High	High
Cavanagh 2018; Germanita 2018; Jonassaint 2020; Rotondi 2024	Low	Low	Low	Low	Low	Low
Chang 2023b[a]	N/A	N/A	N/A	N/A	N/A	N/A
Crawford 2024*	N/A	N/A	N/A	N/A	N/A	N/A

Study Articles	Overall rating	Random sequence generation	Deviation from intended intervention bias	Missing outcome data	Outcomes measurement bias	Selective reporting
Dahne 2019a	Low	Low	Low	Low	Low	Low
Dahne 2019b	Some	Low	Low	Low	Low	Some
Davis 2024	Some	Low	Some	Low	Low	Low
Forand 2018; Forand 2019[a]	Low	Low	Low	Low	Low	Low
Graham 2020	Low	Low	Low	Low	Low	Low
Hanuka 2023	Low	Low	Low	Low	Low	Low
Hey 2023*; Hey 2024*	N/A	N/A	N/A	N/A	N/A	N/A
Kannampallil 2023; Lv 2023	Some	Low	Some	Low	Low	Low
Mason 2023	Low	Low	Low	Low	Low	Low
Mohr 2019a; Nicholas 2019; Nicholas 2021	Low	Low	Low	Low	Low	Low
Mohr 2019b	Low	Low	Low	Low	Low	Low
Mullarkey 2020	Low	Low	Low	Low	Low	Low
Murillo 2020	Some	Low	Some	Low	Low	Low
Morthland 2020; Shah 2018	Some	Low	Low	Some	Low	Low
Pratap 2018	High	High	Some	Low	Low	Low
Santopetro 2024	Some	Low	Some	Low	Low	Some
Schure 2019; Schure 2020	Low	Low	Low	Low	Low	Low
Segal 2020	Low	Low	Low	Low	Low	Low
Spencer-Laitt 2024[a]	N/A	N/A	N/A	N/A	N/A	N/A
Stiles-Shields 2019	Low	Low	Low	Low	Low	Low
Stuart 2022	Some	Low	Low	Some	Low	Low
Sweet 2021	Low	Low	Low	Low	Low	Low
Thase 2018	Low	Low	Low	Low	Low	Low
Xiang 2024a/b	Low	Low	Low	Low	Low	Low
Wright 2022	Low	Low	Low	Low	Low	Low

Notes: N/A = not applicable. See Appendix A for detailed rating information. * Indicates conference abstract/poster. [a] Was not included in data extraction.

Appendix C-2: Risk of Bias Ratings using the Newcastle-Ottawa Scale (NOS)

Study Articles	Overall rating	Group Selection	Group Comparability	Outcome/Exposure Assessment
Amwell (SilverCloud)				
Sharif-Sidi 2021	Low	+++	N/A	++
Brightside Health				
Belanger 2022a	Low	+++	N/A	++
Belanger 2022b	Low	+++	N/A	++
Dario				
Fundoiano-Hershcovitz 2023	Low	+++	N/A	+++
Stoeckl 2023	N/A	N/A	N/A	N/A
Ward 2022	N/A	N/A	N/A	N/A
Headspace				
Kunkle 2020	Low	+++	N/A	++
Kunkle 2021	High	+++	N/A	+
Shih 2022a	High	+++	N/A	+
Shih 2022b	Low	+++	N/A	++
Koa Health				
Wilhelm 2024	Low	+++	N/A	+++
Lyra Health				
Das 2022	Low	+++	N/A	++
Espel-Huynh 2024	Low	+++	N/A	++
Grasso 2022	Low	+++	N/A	++
Lee 2025	Low	+++	N/A	+++
Lungu 2022	Low	+++	N/A	++
Lungu 2020	Low	+++	N/A	++
Owusu 2022a; Owusu 2022b	Low	+++	N/A	++
Owusu 2023	Low	+++	N/A	++
Schneider 2020	Low	+++	N/A	+++
Wu 2021a	Low	+++	N/A	++
Wu 2021b	Low	+++	N/A	++
Wu 2022	Low	+++	N/A	++
Wu 2024	Low	+++	N/A	++
Meru Health				
Alfaro 2024; Gould 2021a; Gould 2021b	Low	+++	N/A	++
Aschbacher 2023	Some	++	N/A	+++
Economides 2019	Low	+++	N/A	++
Economides 2020	Low	+++	+	+++
Forman-Hoffman 2021	Low	+++	N/A	+++
Hornstein 2021	Some	++	N/A	+++
Nelson 2024a	Low	+++	N/A	++
Nelson 2024b	Low	+++	N/A	++
Peiper 2023	Low	+++	N/A	+++
Pettitt 2024	Low	+++	N/A	+++

Study Articles	Overall rating	Group Selection	Group Comparability	Outcome/Exposure Assessment
Modern Health				
Nowels 2024; Sagui Henson 2024; Nowels 2023[a]; Sagui-Henson 2023[a]	Low	+++	N/A	+++
Prescott 2022	High	+++	N/A	+
Roos 2024; Roos 2023*	Low	+++	N/A	+++
Optum (AbleTo)				
Anton 2021	High	+++	N/A	+
Anton 2022	N/A	N/A	N/A	N/A
Spring Health				
Bondar 2022	Low	+++	N/A	++
Talkspace				
Choudary 2023*	N/A	N/A	N/A	N/A
DellaCrosse 2018	Low	+++	N/A	++
Darnell 2022	Some	++	N/A	+++
Hull 2020	Some	++	N/A	+++
Nitzburg 2018	Some	++	N/A	+++
Raue 2022	Low	+++	N/A	+++
Teladoc				
Dzubur 2023	Low	+++	N/A	++
Other				
Bress 2024*	N/A	N/A	N/A	N/A
Camacho 2023	High	+++	N/A	+
Chang 2023a	Low	+++	N/A	+++
Chen 2020	Low	+++	++	++
Chiauzzi 2024; Forman-Hoffman 2023; Forman-Hoffman 2024b; Pajarito 2023*	Low	+++	N/A	+++
Chen 2024	Low	+++	N/A	+++
Ezawa 2023	Low	+++	N/A	++
Ferguson 2024	High	+++	N/A	+
McCallum 2024	Some	++	N/A	+++
Mehta 2021	Low	+++	N/A	+++
Oser 2019	Low	+++	N/A	+++
Venkatesan 2020	Low	+++	N/A	++
Xiang 2021[a]	N/A	N/A	N/A	N/A
Yu 2018	Low	+++	N/A	++

Notes: N/A = not applicable. More + indicates better evidence quality (lower risk of bias). See Appendix A for detailed rating information * Indicates conference abstract/poster. [a] Was not included in data extraction.

Key:
MCID threshold met

Appendix D – Key Comparator Studies with PHQ-9 Outcomes

Publication	Company Name	Risk of Bias	Total N, Study	Analysis Population	Treatment Arm	Total N, Arm	Timepoint	Baseline Score Mean (SD)	Follow-Up Score Mean (SD)	Within Group Change from Baseline		Between Group Difference in Change from Baseline	
										Mean	p-value	Mean	p-value
Self-Guided Content													
No Psychotherapy													
Davis 2024	N/A	Moderate	93	Completers	DHT	47	2 weeks	15.1 (4.10)	9.8 (4.70)	*-5.3*	N/R	*-0.4*	N/R
					Control	46	2 weeks	16.2 (4.30)	11.3 (4.90)	*-4.9*	N/R	N/R	N/R
					DHT	47	4 weeks	15.1 (4.10)	8.7 (4.50)	*-6.4*	N/R	*-1.8*	N/R
					Control	46	4 weeks	16.2 (4.30)	11.6 (5.10)	*-4.6*	N/R	N/R	N/R
Forand 2018	N/A	Low	90	mITT	DHT	59	3 weeks	16.55 (3.99)	11.77 (4.60)	*-4.78*	N/R	*-0.84*	N/R
					Control	30	3 weeks	18.22 (4.84)	14.28 (5.35)	*-3.94*	N/R	N/R	N/R
					DHT	59	5 weeks	16.55 (3.99)	8.42 N/R	*-8.13*	N/R	*-3.84*	N/R
					Control	30	5 weeks	18.22 (4.84)	13.93 N/R	*-4.29*	N/R	N/R	N/R
					DHT	59	8 weeks	16.55 (3.99)	6.45 (4.20)	*-10.10*	N/R	*-6.63*	<0.001
					Control	30	8 weeks	18.22 (4.84)	14.75 (6.68)	*-3.47*	N/R	N/R	N/R
Graham 2020	N/A	Low	146	ITT	DHT	74	4 weeks	14.0 (5.00)	9.0 (5.00)	*-5.0*	N/R	*-3.3*	N/R
					Control	72	4 weeks	13.6 (5.20)	11.9 (5.60)	*-1.7*	N/R	N/R	N/R
					DHT	74	8 weeks	14.0 (5.00)	7.2 (5.50)	*-6.8*	N/R	*-4.6*	N/R
					Control	72	8 weeks	13.6 (5.20)	11.4 (6.60)	*-2.2*	N/R	N/R	N/R
Hanuka 2023	N/A	Low	52	ITT	DHT	26	10 weeks	13.77 (3.44)	7.3 (4.97)	*-6.47*	N/R	*-2.74*	N/R
					Control	26	10 weeks	14.19 (3.23)	10.46 (4.85)	*-3.73*	N/R	N/R	N/R
Murillo 2020	N/A	Moderate	29	Completers	DHT	15	8 weeks	10.55 (3.48)	6.18 (3.46)	*-4.37*	0.01	*-2.56*	N/R
					Control	14	8 weeks	12.36 (4.65)	10.55 (5.07)	*-1.81*	0.172	N/R	N/R

Publication	Company Name	Risk of Bias	Total N, Study	Analysis Population	Treatment Arm	Total N, Arm	Timepoint	Baseline Score Mean (SD)	Follow-Up Score Mean (SD)	Within Group Change from Baseline		Between Group Difference in Change from Baseline	
										Mean	p-value	Mean	p-value
Renn 2024	Optum (AbleTo)	Low	280	Subgroup	DHT	79	2 weeks	15.30 (0.63)	11.37 (0.66)	*-3.93*	N/R	*-1.70*	N/R
					Control	201	2 weeks	14.36 (0.38)	12.13 (0.44)	*-2.23*	N/R	N/R	N/R
					DHT	79	4 weeks	15.30 (0.63)	10.05 (0.66)	*-5.25*	N/R	*-2.79*	N/R
					Control	201	4 weeks	14.36 (0.38)	11.90 (0.44)	*-2.46*	N/R	N/R	N/R
					DHT	79	6 weeks	15.30 (0.63)	9.43 (0.66)	*-5.87*	N/R	*-2.38*	N/R
					Control	201	6 weeks	14.36 (0.38)	10.87 (0.44)	*-3.49*	N/R	N/R	N/R
					DHT	79	8 weeks	15.30 (0.63)	9.20 (0.67)	-6.1	N/R	*-3.33*	N/R
					Control	201	8 weeks	14.36 (0.38)	11.59 (0.67)	-2.77	N/R	N/R	N/R
Stiles-Shields 2019	N/A	Low	30	ITT	Control	10	3 weeks	16.10 (3.76)	13.6 (5.91)	*-2.5*	0.02	N/R	N/R
					DHT	10	3 weeks	15.20 (5.49)	9.60 (4.86)	*-5.6*	0.02	*-3.1*	>0.2
					DHT	10	3 weeks	17.00 (4.62)	6.14 (3.02)	*-10.86*	0.02	*-8.36*	0.03
					Control	10	6 weeks	16.10 (3.76)	11.30 (5.58)	*-4.80*	0.02	N/R	N/R
					DHT	10	6 weeks	15.20 (5.49)	6.60 (3.95)	-8.60	0.02	*-3.80*	>0.2
					DHT	10	6 weeks	17.00 (4.62)	3.43 (3.82)	-13.57	0.02	*-8.77*	0.03
Usual Care													
Carl 2020	Big Health	Low	256	ITT	DHT	128	3 weeks	15.4 (5.10)	12.19 (6.30)	*-3.21*	N/R	*-2.50*	N/R
					Control	128	3 weeks	14.7 (5.80)	13.99 (5.88)	*-0.71*	N/R	N/R	N/R
					DHT	128	6 weeks	15.4 (5.10)	10.80 (6.00)	*-4.6*	N/R	*-3.05*	N/R
					Control	128	6 weeks	14.7 (5.80)	13.15 (6.15)	*-1.55*	N/R	N/R	N/R
Hall 2024	Big Health	N/A	61	ITT	DHT	30	5 weeks	N/R N/R	N/R N/R	-5.3	N/R	-1.87	0.07
					Control	31	5 weeks	N/R N/R	N/R N/R	-3.8	N/R	N/R	N/R

Publication	Company Name	Risk of Bias	Total N, Study	Analysis Population	Treatment Arm	Total N, Arm	Timepoint	Baseline Score Mean (SD)	Follow-Up Score Mean (SD)	Within Group Change from Baseline		Between Group Difference in Change from Baseline	
										Mean	p-value	Mean	p-value
Moberg 2019	Optum (AbleTo)	Moderate	500	ITT	DHT	253	4 weeks	9.7 (0.20)	7.4 (0.40)	*-2.3*	<0.05	*-1.8*	N/R
					Control	247	4 weeks	10.0 (0.20)	9.5 (0.30)	*-0.5*	<0.05	N/R	N/R
Schure 2019	N/A	Low	343	ITT	DHT	181	4 weeks	13.7 (5.00)	8.165 (0.37)	-5.5	N/R	-2.7	N/R
					Control	162	4 weeks	13.4 (5.00)	10.602 (0.37)	-2.8	N/R	N/R	N/R
					DHT	181	8 weeks	13.7 (5.00)	7.240 (0.39)	-6.5	N/R	-2.9	N/R
					Control	162	8 weeks	13.4 (5.00)	9.845 (0.37)	-3.6	N/R	N/R	N/R
Segal 2020	N/A	Low	460	ITT	DHT	230	12 weeks	7.20 (1.41)	*4.37* N/R	-2.83	<0.001	-1.89	<0.001
					Control	230	12 weeks	7.29 (1.53)	*6.35* N/R	-0.94	<0.001	N/R	N/R
Stuart 2022	N/A	Moderate	302	ITT	DHT	148	8 weeks	14.6 (5.10)	8.1 N/R	*-6.5*	N/R	-2.54	0.002
					Control	154	8 weeks	14.9 (5.20)	10.9 N/R	*-4.0*	N/R	N/R	N/R
Rothman 2024	Rejoyn	Low	386	mITT	DHT	177	6 weeks	15.4 (4.70)	N/R N/R	-6.68	0.0029	*-1.58*	N/R
					Control	177	6 weeks	15.1 (4.70)	N/R N/R	-5.10	N/R	N/R	N/R
Blended-Care Solutions													
Usual Care													
Forman-Hoffman 2024a	Meru Health	Low	100	ITT	DHT	54	6 weeks	15.02 (0.81)	10.31 (0.85)	-4.72	N/R	*-4.04*	N/R
					Control	46	6 weeks	15.73 (0.88)	15.05 (0.93)	-0.68	N/R	N/R	N/R
					DHT	54	12 weeks	15.02 (0.81)	8.66 (0.90)	-6.36	<0.05	*-4.50*	N/R
					Control	46	12 weeks	15.73 (0.88)	13.87 (0.94)	-1.86	<0.05	N/R	N/R
Wright 2022	N/A	Low	175	ITT	DHT	95	12 weeks	16.1 N/R	8.6 N/R	*-7.5*	N/R	*-2.4*	N/R
					Control	80	12 weeks	16.2 N/R	11.1 N/R	*-5.1*	N/R	N/R	N/R

Notes: DHT = digital health technology. ITT = intent to treat. N/A = not applicable. N/R = not reported. SD = standard deviation. MCID = minimal clinically important difference. Italic values are calculated values from other data provided in article. Data extracted from a figure is in blue.

Key:
MCID threshold met

Appendix E – Key Comparator Studies with GAD-7 Outcomes

Publication	Company Name	Risk of Bias	Total N, Study	Analysis Population	Treatment Arm	Total N, Arm	Timepoint	Baseline Score Mean (SD)	Follow-Up Score Mean (SD)	Within Group Change from Baseline		Between Group Difference in Change from Baseline	
										Mean	p-value	Mean	p-value
Self-Guided Content													
No Psychotherapy													
Graham 2020	N/A	Low	146	ITT	DHT	74	4 weeks	11.6 (4.60)	8.4 (4.60)	*-3.2*	N/R	*-2.7*	N/R
					Control	72	4 weeks	11.2 (4.70)	10.7 (5.20)	*-0.5*	N/R	N/R	N/R
					DHT	74	8 weeks	11.6 (4.60)	6.8 (5.10)	*-4.8*	N/R	*-3.4*	N/R
					Control	72	8 weeks	11.2 (4.70)	9.8 (5.50)	*-1.4*	N/R	N/R	N/R
Renn 2024	Optum (AbleTo)	Low	280	mITT	DHT	79	2 weeks	12.75 (0.54)	9.74 (0.55)	*-3.01*	N/R	*-1.34*	N/R
					Control	201	2 weeks	13.08 (0.34)	11.41 (0.40)	*-1.67*	N/R	N/R	N/R
					DHT	79	4 weeks	12.75 (0.54)	8.23 (0.55)	*-4.52*	N/R	*-1.82*	N/R
					Control	201	4 weeks	13.08 (0.34)	10.38 (0.40)	*-2.7*	N/R	N/R	N/R
					DHT	79	6 weeks	12.75 (0.54)	7.81 (0.55)	*-4.94*	N/R	*-1.96*	N/R
					Control	201	6 weeks	13.08 (0.34)	10.10 (0.40)	*-2.98*	N/R	N/R	N/R
					DHT	79	8 weeks	12.75 (0.54)	7.77 (0.55)	-4.98	N/R	*-1.57*	N/R
					Control	201	8 weeks	13.08 (0.34)	9.67 (0.39)	-3.41	N/R	N/R	N/R
Xiang 2024b	N/A	Low	70	ITT	DHT	35	9 weeks	7.85 (3.73)	5.06 (4.71)	*-2.79*	0.001	*-1.85*	N/R
					Control	35	9 weeks	6.17 (5.25)	5.23 (3.38)	*-0.94*	0.15	N/R	N/R
Usual Care													
FDA, K233872, (Daylight)	Big Health	N/A	351	N/R	DHT	175	10 weeks	15.58 (3.5)	7.88 (4.76)	*-7.70*	N/R	*-3.24*	<0.001
					Control	176	10 weeks	16.14 (3.07)	11.68 (4.42)	*-4.46*	N/R	N/R	N/R
Carl 2020	Big Health	Low	256	ITT	DHT	128	3 weeks	15.6 (2.80)	10.81 (4.39)	*-4.79*	N/R	*-2.8*	N/R
					Control	128	3 weeks	15.6 (3.10)	13.64 (4.43)	*-1.96*	N/R	N/R	N/R

Publication	Company Name	Risk of Bias	Total N, Study	Analysis Population	Treatment Arm	Total N, Arm	Timepoint	Baseline Score Mean (SD)	Follow-Up Score Mean (SD)	Within Group Change from Baseline		Between Group Difference in Change from Baseline	
										Mean	p-value	Mean	p-value
Carl 2020	Big Health	Low	256	ITT	DHT	128	6 weeks	15.6 (2.80)	9.46 (4.67)	*-6.14*	N/R	*-3.2*	N/R
					Control	128	6 weeks	15.6 (3.10)	12.66 (4.70)	*-2.94*	N/R	N/R	N/R
Moberg 2019	Optum (AbleTo)	Moderate	500	ITT	DHT	253	4 weeks	9.7 (0.20)	7.4 (0.40)	*-2.3*	<0.05	*-1.5*	N/R
					Control	247	4 weeks	9.6 (0.20)	8.8 (0.40)	*-0.8*	<0.05	N/R	N/R
Oser 2019	N/A	Low	812	MCA	DHT	593	6 months	10.91 (4.97)	*8.94* N/R	-1.97	N/R	-0.01	0.99
					Control	219	6 months	10.46 (5.10)	*8.50* N/R	-1.96	N/R	N/R	N/R
Schure 2019	N/A	Low	343	ITT	DHT	181	4 weeks	10.3 (4.70)	7.121 (0.35)	-3.2	N/R	-1.7	N/R
					Control	162	4 weeks	10.2 (4.60)	8.724 (0.34)	-1.5	N/R	N/R	N/R
					DHT	181	8 weeks	10.3 (4.70)	6.481 (0.36)	-3.8	N/R	-2.0	N/R
					Control	162	8 weeks	10.2 (4.60)	8.382 (0.34)	-1.8	N/R	N/R	N/R
Segal 2020	N/A	Low	460	ITT	DHT	230	12 weeks	6.51 (3.15)	*4.17* N/R	-2.34	<0.001	-1.6	<0.001
					Control	230	12 weeks	6.20 (3.28)	*5.45* N/R	-0.75	<0.01	N/R	N/R
Stuart 2022	N/A	Moderate	302	mITT	DHT	148	8 weeks	11.1 (4.70)	7.2 N/R	*-3.9*	N/R	*-0.8*	N/R
					Control	154	8 weeks	11.7 (5.00)	8.6 N/R	*-3.1*	N/R	N/R	N/R
Rothman 2024	Rejoyn	Low	386	mITT	DHT	177	6 weeks	9.6 (4.50)	N/R N/R	-3.41	0.0705	*-0.77*	N/R
					Control	177	6 weeks	9.6 (4.90)	N/R N/R	-2.64	N/R	N/R	N/R
Blended-Care Solutions													
Usual Care													
Forman-Hoffman 2024a	Meru Health	Low	100	ITT	DHT	54	6 weeks	11.69 (0.69)	8.27 (0.73)	-3.42	N/R	*-3.02*	N/R
					Control	46	6 weeks	11.49 (0.75)	11.09 (0.80)	-0.40	N/R	N/R	N/R

Publication	Company Name	Risk of Bias	Total N, Study	Analysis Population	Treatment Arm	Total N, Arm	Timepoint	Baseline Score Mean (SD)	Follow-Up Score Mean (SD)	Within Group Change from Baseline		Between Group Difference in Change from Baseline	
										Mean	p-value	Mean	p-value
Forman-Hoffman 2024a	Meru Health	Low	100	ITT	DHT	54	12 weeks	11.69 (0.69)	6.60 (0.78)	-5.08	N/R	*-4.05*	<0.05
					Control	46	12 weeks	11.49 (0.75)	10.46 (0.81)	-1.03	N/R	N/R	N/R
Wright 2022	N/A	Low	175	ITT	DHT	95	12 weeks	12.3 N/R	7.1 N/R	*-5.2*	N/R	*-2.7*	N/R
					Control	80	12 weeks	12.4 N/R	9.9 N/R	*-2.5*	N/R	N/R	N/R

Notes: DHT = digital health technology. ITT = intent to treat. MCA = matched cohort analysis. N/A = not applicable. N/R = not reported. SD = standard deviation. MCID = minimal clinically important difference. Italic values are calculated values from other data provided in article.

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